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What's to Eat?

And Other Questions Kids Ask about Food

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And Other Questions Kids Ask about Food

COMPLIMENTS OF
CONGRESSMAN ELDON RUDD
4TH DISTRICT, ARIZONA

The United States Department of Agriculture Yearbook 1979

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FOREWORD

We dedicate our yearbook for 1979 to food and to young people, because this year has been designated as the International Year of the Child. Of course, the Department of Agriculture has always had food on its mind, ever since USDA was created more than a hundred years ago. Searching out better ways to grow food and other agricultural products, and helping everyone make the best possible use of them, has always been our business. That's why the Department was chosen as the principal agency in the Federal government to work on nutrition.

There are other reasons for writing a book on food — for young people, for old people, or for anyone in-between. For one, food is fascinating. The way a leaf goes about turning sunshine and air and water into an ear of corn, the way a chicken turns that corn into a meaty drumstick, and the way our bodies can turn the drumstick into strong muscles, is truly an adventure in living.

There's another. Most people don't realize it, but food—and everything related to agriculture — is the nation's biggest business. From the trucker hauling lettuce to town to the checker ringing up the bill at the store, more people work in jobs related to food and agriculture in this country than in any other kind of work.

This book tells the story of food. We hope you will enjoy it. Farmers of the nation keep us supplied with an abundance of good food. We hope you are fortunate enough to enjoy that, too.

Happy reading and happy eating!

Bob Bergland

Secretary of Agriculture

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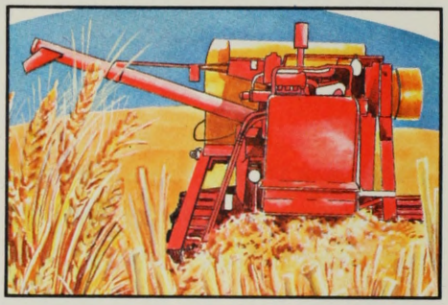

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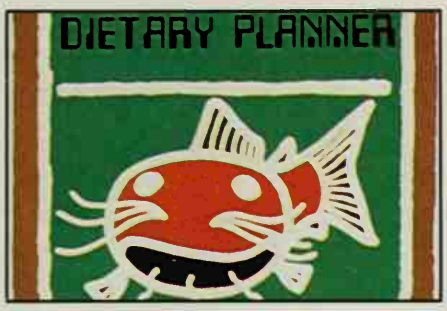

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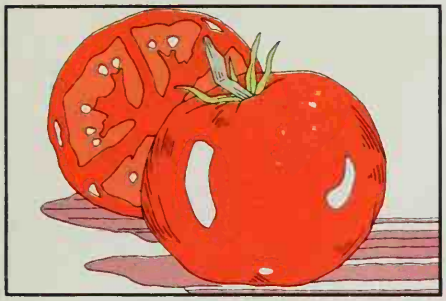

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DID PREHISTORIC KIDS REALLY EAT BUGS?

A Look at the History of Food and Eating

Early man hunts and gathers
2,000,000 B.C.

If you were asked to name some fairly recent inventions or discoveries, there are many things you might mention. The new electronic TV games, space exploration, or even a way of preventing polio are some of them.

But you probably wouldn't think to mention farming, would you? People have been farming for as long as you, your parents, or even your grandparents can remember.

The fact is, however, that farming is a fairly recent discovery in the long history of human beings on earth.

That may be hard to believe, so let's think about it this way. Human beings have been on earth for about 2½ million years. Let's say that 2½ million years are equal to one day — 24 hours.

But people have been farming for only about 12,000 years. Those 12,000 years, then, are equal to only about 7 minutes in that day. That's not very long, is it?

Yet, those 7 minutes have played one of the

ag·ri·cul·ture
(ag′ re kul′ cher) n:
the science or art of cultivating the soil, producing crops, and raising livestock, and in different degrees the preparation of these products for use by human beings; farming

most dramatic roles in the history of human beings on earth. Those 7 minutes of farming have made civilization possible by freeing people from having to roam in search of food. Farming meant people could settle in one place and there build lives for them and their children.

So let's take a closer look at the history of agriculture. First, we'll see how human beings lived for hundreds of thousands of years before farming. Next, we'll look at a 10,000-year period in which the idea of farming developed and spread throughout the world.

The third part of our look at the history of farming will cover a 1,000-year period known as the Middle Ages. And, finally, we'll see how the agricultural revolutions of the last couple of hundred years have had an important role in our lives today.

Throughout these four parts, we'll see that the history of farming is more than just the story of agriculture. It is, indeed, the roots of your life. □

35,000 Years Ago: Hungry Most of the Time

What do you think your life would have been like if you had lived 35,000 years ago? It's not easy to imagine, is it?

Actually, the people who lived during that time were not much different from the people of today—at least in the way they looked. But their day-to-day lives were greatly different.

So, let's turn back the clock to see what a day in your life might have been like—35,000 years ago.

The time is early morning. You've just awakened. You roll over on your bed of leaves, and pull the animal skin up around your neck. You try to go back to sleep. But your stomach is grumbling too loud.

You're hungry!

You hurry outside. There, you see your own family, and several other families, too. All of you live together in a tribe. It's safer if you should ever run into enemies.

The men of the tribe are picking up their clubs and stones. They're getting ready to go hunting for bears, buffalo, or reindeer. But these large animals are very hard to catch and kill. The men will very likely come home emptyhanded—and very hungry.

So you get together with some of your friends. It's important for you and the other kids in the tribe to help find food, too.

Today, you will pick berries and nuts and seeds. You will try to catch squirrels and turtles and snakes. If you come across a pond, you will jump in and try to catch fish with your bare hands. But you also know that it is likely you will come home emptyhanded as well.

Even when you find mushrooms or berries, they sometimes make you sick. There is no way of knowing which plants are safe to eat and which aren't. Some members of your tribe have died from eating the wrong food.

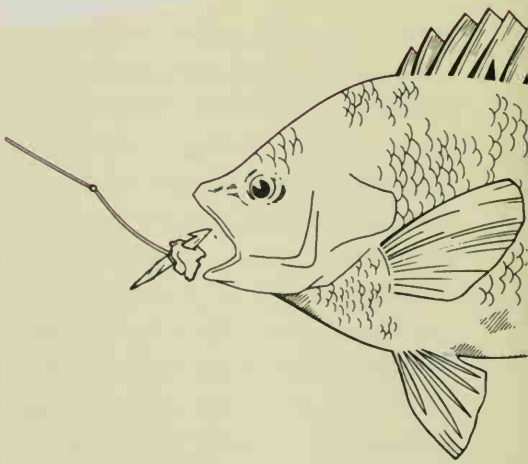
You spend almost every minute of this cold, winter's day searching for food. But today has not been a lucky one—for you and your friends, or for the men in your tribe.

Perhaps tomorrow will be better. But as night falls, you go to bed the same way you woke up: hungry!

Insects: Yum!

You're probably saying to yourself, "Insects: ugh! Who would eat them?"

But thousands of years ago, insects were a favorite food. In fact, prehistoric people liked the taste of some insects so well that a few kinds were almost wiped out. And even today, many people in India and Africa still eat certain kinds of insects.



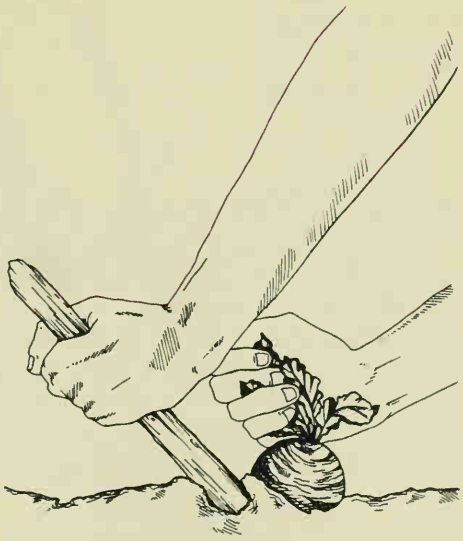
And that's just about how primitive people felt most of the time: hungry! The idea of farming had not come about; and without farming it was difficult — sometimes impossible — to find enough food for people to eat. Many people died of hunger. Few people ever reached the age of 25.

For hundreds of thousands of years, the way of life for prehistoric human beings changed very little. Even the modern human beings that had developed by around 35,000 B. C. were forced to spend most of their time hunting for food. Another 25,000 years would pass before the idea of farming would begin to develop. But that idea would change the world dramatically. □

A Fishy Story

People have been fishing for a long time. About 25,000 B.C., people started using bait on a bone fastened to a line. This was called a fishing gorge. Fish would take the bait, and the gorge would become stuck in the fish's mouth.

Later, people learned to carve hooks from the bones and horns of animals.



Eat Your Vegetables!

Kids in the United States have heard their parents tell them that for years.

But back in prehistoric times, that was something parents probably never had to say. That's because vegetables were an important part of their diet.

Wild turnips, onions, and radishes are some of the root vegetables that people dug up millions of years ago. They also searched for other vegetables that grew wild aboveground, such as squash, cabbage, and mushrooms.

The Discovery of Farming: An Idea that Changes the World

If you had to name the single most important thing that has happened in the last 10 years, it might be pretty hard to do.

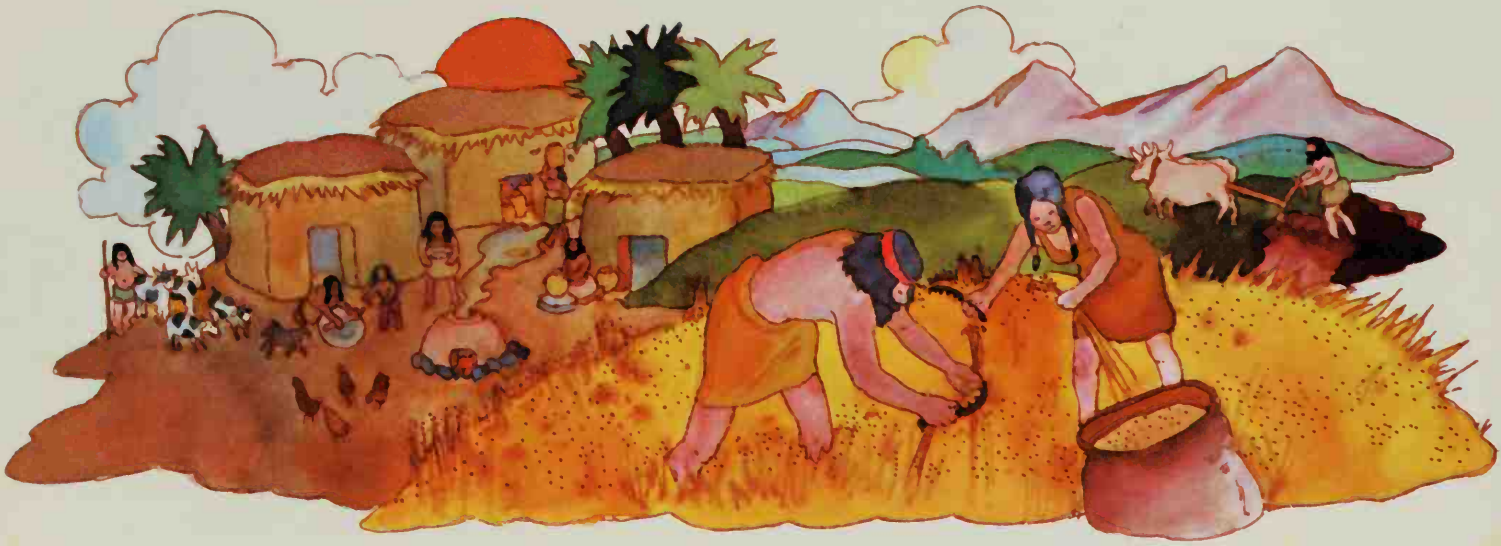
But, if you were asked to name the most important thing that happened within one two-thousand-year period of our history—the time between 10,000 B.C. and 8,000 B.C.—it would be easy. The answer is the discovery of farming.

Today, the idea of farming seems obvious. You put some seeds in the ground, and soon plants that you can eat begin to grow. Or you raise some cows, pigs, or chickens that will provide other kinds of food you need. Simple.

But to prehistoric people, farming was a mystery for thousands of years.

No one knows for sure how farming first began. But, like many great inventions, it probably happened by accident. Who knows? Someone your age may have accidentally dropped some seeds or grains of wild wheat in the ground one fall. The next spring, that same young tribe member may have discovered some crops growing in the spot where he or she dropped the grain.

No matter how it came about, we do know that sometime between 10,000 B.C. and 8,000 B.C., people began to grow crops, and to tame and raise livestock.



Getting Things Cooking

Prehistoric people learned to make fires to keep them warm nearly 500,000 years ago. But they continued to eat things raw for thousands of years after that.

The idea for cooking food probably happened by accident. Someone may have dropped a piece of meat into a dying fire, then tasted it, and said: "Hey, this tastes pretty good." About the same time, they discovered that cooked meat could be kept longer than raw meat.

Next, they learned that if they would wrap their food in wet leaves, they could bake or steam it in the hot ashes.

Slowly, life for prehistoric people began to change a great deal. They no longer had to move from one place to another, always searching for their next meal. They could stay put. So they began to build homes out of straw, mud, and animal skins.

Farming also forced humans to use their brains more. They had to think of new tools and new ways of doing things.

For instance, early farmers used sticks with sharpened ends to break up the ground and get it ready for planting. Later, they tied flint to the ends of these sticks. (Flint is a hard, rock-like material that can be chipped into sharp flakes.)

These digging sticks led to a crude kind of hoe. The first hoe was probably a forked stick. Farmers would pull this forked stick toward them to stir up the ground. And this crude hoe, then, led to the plow, which prepares the soil for planting.

Early digging sticks

Another farming tool that was invented about this time is the sickle. A sickle is a hand-tool that is used for cutting grass or grain. The early sickle had a long handle made out of bone. Often, farmers tied flint to the end of this handle, too.

As farmers learned more about growing crops, they also learned more about raising livestock. At first, they caught and tamed only small animals: birds, squirrels, and chickens. Before long, though, they learned to tame larger ones. And they discovered that the larger animals could help them do the work.

The oxen, the water buffalo, and the camel, for instance, are three kinds of animals that early farmers first put to work. The farmers used these animals to pull their plows.

This was an important step in farming. It meant that farmers could plant more wheat and barley — their favorite crops at the time — because they could plow more land.

It also meant that people had time to do other things. Some made pots; others made tools; still others built boats, wove cloth, or cut stone.

But the most important thing that farming brought about was more food. More food, of course, meant that more and more people could be fed. And that meant that more children lived to have children of their own.

Before farming, there were only about 3 million people on the earth. That's about half the population of New York City today.

By 3000 B.C., however — after only 7,000 years of farming — the population had exploded to nearly 100 million people. That's 30 times the number of people who lived on earth before farming.

Slowly, the world was becoming one of settled farmers, rather than small tribes of people constantly roaming the earth in search of food.

Farming brought about that change — this new way of life — called agriculture. And agriculture marked the beginnings of real civilization. □

Where Did It All Start?

Farming probably got its start in the Middle East, sometime between 10,000 and 8,000 B.C., in an area that today makes up the countries of Lebanon and Iraq. It soon spread — or had developed on its own — in three other important parts of the world. These three areas were:

1. Southeast China, south of the third largest river in the world — the Yangtze.
2. Central Africa, near modern-day Kenya.
3. The Highland area of Middle America, mainly in central Mexico, Peru, and Bolivia.

You can see where those four areas are on the map. It was from these four areas that farming spread elsewhere, and eventually throughout the world. □

Grain: The Basic Food Crop . . . Then and Now!

Grain was the basic food crop for the first farmers more than 10,000 years ago. And you know what? Today, grain is still the most basic food crop.

In 1976 farmers produced far more grain crops than any other kind. The three top grain crops and the amount produced were:

- Wheat — 412 million tons
- Rice — 344 million tons
- Corn — 335 million tons

The amount of wheat alone is huge. If you put all that wheat in a freight train, that train would be long enough to go around the world more than two times.

Grain is important for two reasons. First, it provides the major food supply for a great many people. Rice, for instance, is the main food for about half the people in the world.

Second, grain is used to feed livestock. And livestock provide us with milk, meat, eggs, and many other foods we eat.

In the early days of farming, grain was important for other reasons as well. The early farmers discovered that grain would keep and not spoil through the long winter months. Other crops, such as the potato or carrot, would rot if kept too long.

Early farmers also discovered that grain was an easy crop to turn into different kinds of food. Making bread from wheat grain takes only some yeast, salt, and an oven. Often, though, early farmers ate grain in its more natural form. "Parched" grain is an example. It's a mashed up grain, like our hot cereals today.

Grain was also important then . . . as it is now . . . because it has many important nutrients. For instance, grain has a lot of starch in it. And starch helps to give people (and animals) energy.

Finally, grain was and still is important because it grows very easily in many different parts of the world.

That's grain, the basic food crop then and now.

Highlights of 10,000 Years

Sometimes a few minutes can seem like years — particularly when you're sitting in the dentist's chair, right?

But here are 10,000 years that will seem like only minutes. That's about how long it will take you to read these highlights of our history from 10,000 B.C. to the A.D. 200's.

Ready? Go!

10,000 B. C. — The earliest ideas about farming are beginning to develop.

8,000 B. C. — The knowledge of farming begins to spread. Also, oars are invented. They make it possible for fishing boats to go farther out into the ocean, or across wide rivers in search of fish.

7,000 B. C. — The invention of pottery about this time makes cooking and carrying food easier. Thousands of years earlier, people had used animal skins and bark from trees to carry water.

3,000 B. C. — A really busy period. Many things happen, including: • The Spread of Farming: Farming slowly becomes the way of life for most people, and population grows rapidly. • The Bronze Age: Bronze tools and weapons mean sharper tools and quicker cutting. • The Invention of Irrigation: For thousands of years, farmers had depended on rain to water their crops. But now the Egyptian farmers began to dig ditches that led from rivers to their fields. This meant that crops could be grown in places that were too dry to grow things on before. • The Invention of Writing: People could now keep records and write about many things — including farming. • The Invention of the Wheel: This invention really got things rolling. It made possible carts and wagons.

1,000 B. C. — The Iron Age begins and it continues right into the present day. Iron meant that stronger and sharper farming tools could be made. This helped to increase crop production. And increased production led to more trade, and the development of the use of money.

A. D. 200 — The Roman Empire is at its height. The Romans introduce many new methods of farming. They start the practice of leaving one field fallow (or unplanted) each year. This gives the soil a chance to store moisture for a crop the next year.

Farming Grows And Changes: Different Foods and Different People

DINNER MENU

APPETIZER Imported Cheeses and Wine

SALAD Eggs (Seasoned with Spices from India)

MAIN COURSE Beef Goat Duck Mutton Venison Geese Chicken

VEGETABLES A Dozen Different Kinds (Cooked in Palm Oil from Africa or Olive Oil from Italy)

DESSERT Home-Made Frozen Ice Cream

BEVERAGE Tea from China Coffee from Africa

BREAD Made from Wheat Grown in Egypt (No extra charge)

If you had been invited to a friend's castle for dinner 1,000 years ago, the dinner menu might very well have looked just like this one. That is, if your friend happened to be the Lord of a Manor in Western Europe.

But not many people were. In fact, most of the people were poor peasants. They worked the fields owned by the Lords.

This was a time known as the Middle Ages. It began with the fall of the Roman Empire during the A.D. 400's. And it lasted until about the time Columbus first stepped foot on the New World.

During the Middle Ages, there were many wars. The wars caused people to flee from the cities to the safety of a Lord's large estate. Important centers for trade and industry disappeared. Education became unimportant. And much of the ancient Greek and Roman knowledge was lost.

Yet farming survived. In fact, during this 1,000-year period, there were three important improvements in the methods of farming. One was the three-field system of crop rotation.

Under this system farmers divided their land into three fields. One year they would leave the first field unplanted; put one kind of crop in the second field; and put another kind of crop in the third field. The next year they would rotate the crops, which would leave the second field unplanted.

Another improvement that came out of the Middle Ages was a new kind of harness. This new harness made it possible to hitch a horse to a plow. And that was important because a horse could pull a plow a lot faster than an ox.

(continued on page 15)

Clean Your Plate?

A dinner party in China during the Middle Ages was really something. There were as many as 40 different dishes. There was lots of rice, at least 20 different "veggies" and all kinds of soups. Soup made from bird's tongues. From deer heads. From lamb's paws. And even soup from fried wolf.

Put a Little Spice in Your Life

Sailing trips to the Spice Islands often took 2 years. But it was worth it. The sailors could sell spices like pepper and cinnamon and nutmeg back in their home countries for at least 10 times what they paid for them. Because spices were so expensive, the poor had to settle for herbs, onions, and garlic.

Of Cabbages and Kings

The lords in the manors might have been eating imported cheese, beef, duck, and ice cream during the Middle Ages, but most people — at least in Northern Europe — had to make do with quite a different menu. Bread, water or ale were the basics, maybe with a little honey to sweeten food. But it was the soup-of-the-day made from broth and whatever was around that kept people going.

Dinner South of the Sahara

Africa was one of the places where farming began. By the Middle Ages, people all over Africa were farmers. A dinner in one of their homes might have been a porridge made from grain with a vegetable sauce and perhaps some chunks of beef or lamb.

Other popular foods were cooked yams and roasted ground nuts (like our peanuts). Melons, onions, dates, and other fruits were also common.

Proper Etiquette?

There were even books on etiquette during the Middle Ages. But some of the rules to follow at the table were a little strange. For instance, one book tells us that after finishing the meat on a bone, some people actually had the nerve to put it back in the dish. That was a no-no. The proper place for it was on the floor!

Farming in China and Japan

Soil and weather have always been important to how farmers grow things.

In China, for instance, the rice grew well in flooded rice paddies. The Chinese farmers worked barefoot in the paddies. This made it easy to move around. But it was dangerous. Cobras lived in the shallow waters of the rice paddies. Many Chinese farmers died from snake bites.

In Japan, on the other hand, land was scarce and hilly. So rice was grown on terraces all along the steep hillsides.

"He's Not Worth His Salt"

Have you ever heard that saying? Well, it comes directly out of the Middle Ages.

Today, of course, salt doesn't cost very much. But back then, it was very expensive. The salt alone could cost half as much as the piece of meat or fish it was used on.

And salt was important. It was used to preserve meat. Remember, there were no refrigerators then!

Famine: Then There Was None

Famines have happened throughout man's history. There were some really serious famines during the Middle Ages. In Egypt between the years of 1064-1072 the Nile failed to flood, causing famine. Too much rain ruined the harvests in Europe between 1315-1317, as much as 10 percent of the population died. There were also bad famines in the 1300s in China and Russia. In Russia, many of the people who survived ate roots and sawdust.

(continued from page 12)

The third improvement had to do with breeding livestock. During the late Middle Ages, the Guernsey cow was developed. It provided very rich milk—then, as it still does today.

During this time, Western Europe had to struggle to survive. Yet, other parts of the world were enjoying great wealth. Japan, for instance, entered a period that has become known as its "golden age." China, too, saw its civilization grow to new heights.

In Southeastern Europe, the Byzantine Empire came to power, and in the Middle East one of the most advanced cultures of the time developed.

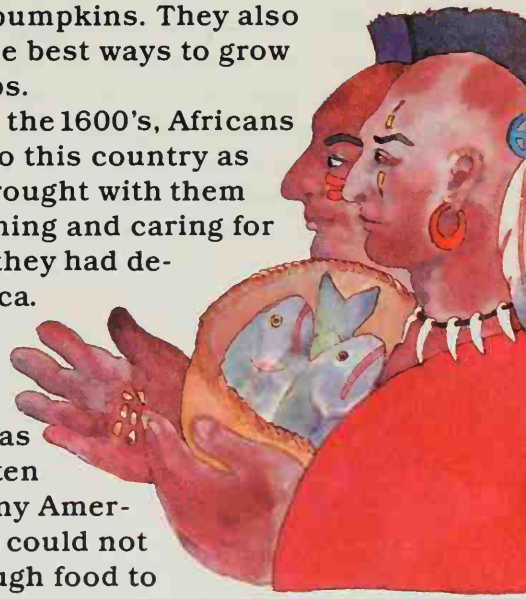
The kings and queens in Western Europe wanted many of the things that these other parts of the world had to offer. So they sent their sea captains to search for these "goodies." One of these captains was Christopher Columbus.

In 1492 (on August 3, to be exact), Columbus sailed from Spain in search of a shorter route to the East Indies—a land rich in spices. But he ended up on a continent no European had known about before. It was later called the New World. Today, of course, we know it as North America.

Many people from Europe heard about the New World. They saw it as a land of opportunity. They sailed off to this new land with great hopes.

Nine out of ten people who made it to America wound up as farmers. But farming was difficult. The Europeans who came to America were not familiar with the soil or the climate or the crops that would grow well in the New World.

The American Indians did know these things. They taught the new settlers about new crops—corn, beans, peanuts, sweet potatoes, and pumpkins. They also taught them the best ways to grow these new crops.



Beginning in the 1600's, Africans were brought to this country as slaves. They brought with them skills in gardening and caring for livestock that they had developed in Africa.

Even with the help of the Indians and the Africans, life was hard. Crops often failed. And many American settlers could not grow enough food to keep their families alive.

But a great many changes in farming methods were coming. And changes and discoveries would make farming more productive than ever before. □

The Agricultural Revolutions: More Food for More People

Here's a quick quiz we bet you can't fail! Just answer these three easy questions.

1. A revolution is...
   (a) the name of a galaxy.
   (b) the noise a car makes when it starts up.
   (c) a disco dance where you spin in circles.
   (d) a major change in any situation.
2. Agriculture means...
   (a) the science and business of cultivating land and raising livestock.
   (b) the science and business of producing crops.
   (c) the science and business of farming.
   (d) all of the above.
3. An agricultural revolution is...
   (a) a Star Wars battle among farmers.
   (b) an uprising of pigs and cows.
   (c) a revolting wheat crop.
   (d) a major change in the way farmers farm.

Sure, you probably guessed that all the answers are "d." An agricultural revolution is a major change in how farmers raise crops and livestock.

During the last few hundred years, there have been at least three agricultural revolutions, one in England and two in America. Each one came about as the result of new inventions and discoveries for farming. But they all had one thing in common: Farmers could produce more and more food.

The English Agricultural Revolution

A fence may seem like a simple enough idea. But the key to England's agricultural revolution was the fence. And this knowledge was brought to America.

For years, farmers had known that if you fenced in the livestock, you wouldn't lose them. But then during the early 1700's it dawned on some very clever farmers that you didn't have to keep all the cattle in one pen. You could pick out the strongest, or biggest, or even best-looking cow and bull you had, and put them together. They would mate. And their calves would be just like the parents.

Four field crop rotation

This is called controlled breeding. And it was the simple, old fence that helped farmers learn how to control breeding, and produce better and better livestock.

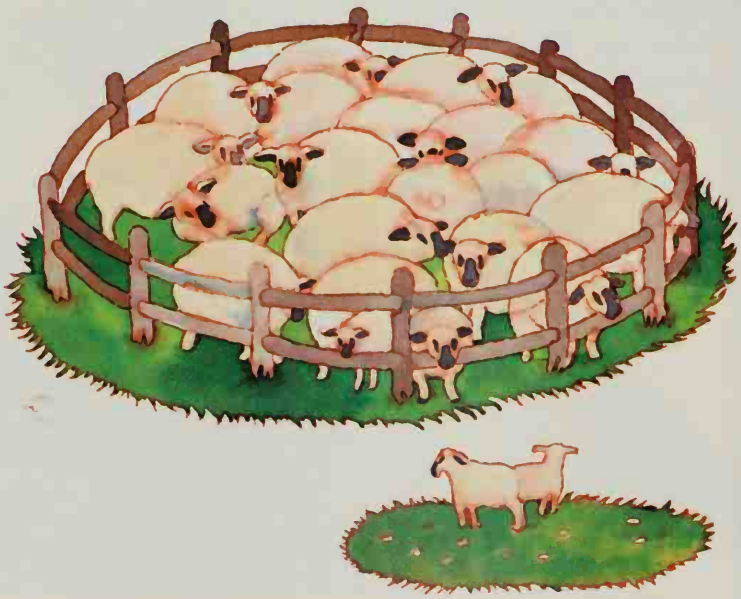
At about the same time, a new idea in crop rotation was being tried. And, here again, fences played an important part, too.

Farmers, of course, knew that planting wheat in the same field every year was not good. And they knew about the three-field system of crop rotation.

But during the 1700's, a man—who later earned the nickname "Turnip" Townsend—discovered the four-field system of crop rotation.

He thought turnips gave the soil many of the nutrients other crops took away. So he planted clover in one field the first year; two different kinds of wheat in that same field the next two years; and turnips in the field the fourth year.

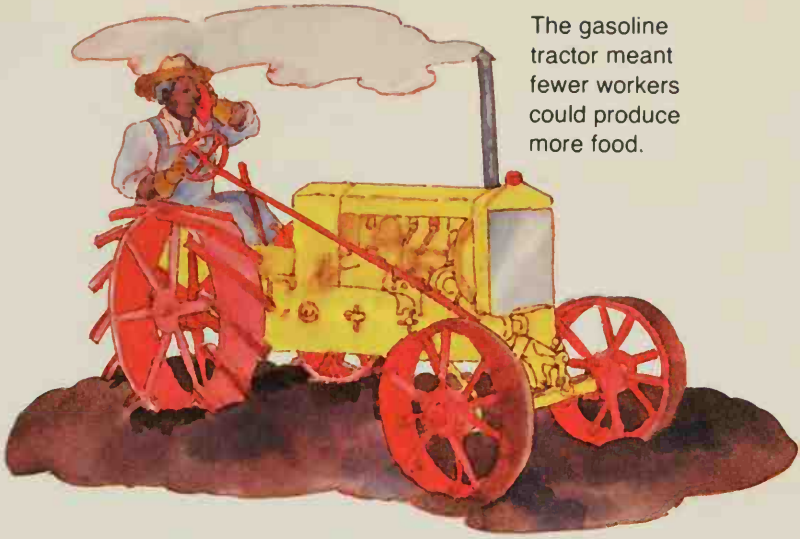
Actually, "Turnip" Townsend was wrong about turnips. It really was the clover, which adds nitrogen to the soil, and the changing of crops



from one year to the next that gave him bigger harvests.

This meant that all of a farmer's land could be planted every year. No field had to be left fallow — or unplanted — as in the three-field system of crop rotation.

And fences helped the farmer divide his land, and remember which crop was planted in which field. (They also helped keep stray animals out of the fields.)



The gasoline tractor meant fewer workers could produce more food.

The First American Revolution

Our Civil War helped cause a revolution in farming. Since a lot of men who worked on farms went to war, the farmers who were left turned to machines for help. With higher food prices, they could now afford to pay for machines and tools invented 20 or 30 years earlier.

Among the new machines were the McCormick reaper which speeded up harvesting, the steel plow, a practical grain drill for planting seeds and a horse powered threshing machine. (A threshing machine separates the seed from the harvested plant.)

These and other inventions brought about the first American agricultural revolution. The revolution meant that fewer workers were needed to produce food crops, and each farm worker could produce more food to feed more people.

The Second American Revolution

Up until World War II, most farmers continued to use horses to plow and harvest the fields. But during the war, the United States needed more grain. We had to feed our country, and help feed our allies overseas.

Gasoline tractors had been invented long before the war. But farmers didn't think they needed these expensive, noisy machines. In order to produce more food, however, farmers needed help. So they turned from horsepower to "tractorpower." It still took until the early 1950's, though, for there to be more tractors on American farms than work horses and mules. By then, the second American agricultural revolution was well underway.

Today the agricultural revolution continues. Better machines and advances in science have made it possible to grow more food more efficiently. In the last 20 years,

The McCormick reaper speeded up harvesting.

100 bushels of corn come from an acre today.

for instance, farm machines have improved greatly. The modern combine is a machine that can cut, thresh and clean a crop all at the same time. This saves the farmer a lot of work. The modern grain drill is another improved machine. It does more than just drop seed on the ground. It can plant a crop, put fertilizer in the ground, and provide for weed control—all in one pass over the field.

Seeds are better now. They produce a much higher yield. For example, if you had planted an acre of corn 100 years ago you could expect to get only about 28 bushels of corn. Today you would get about 100 bushels from that same acre.

Livestock is more productive now. The average dairy cow produces nearly three times as much milk as in 1945. And chickens today are a lot meatier than they were when your parents were young.

28 bushels of corn came from an acre 100 years ago.

Crops and livestock now are better protected from disease and pests. Animals get shots and vitamins and special feed developed just for them. And plants are protected from insects and weeds both with and without chemicals.

These important improvements, as well as many other advancements, have worked together to bring about today's agricultural revolution. They have made it possible for farmers to produce more food on their farms than even scientists had imagined possible just a few decades ago.

And progress continues! □

George Washington Carver

George Washington Carver was a great American. He gained fame for his agricultural research and helped revolutionize farming in the South. Before Carver, southern farmers raised mostly cotton. If cotton prices went down or something happened to the crop, the farmers were in trouble. Carver taught the farmers to also raise peanuts, sweet potatoes and pecans. These crops gave the farmers a new way to earn money, and helped make the South less dependent on cotton.

Carver was also an inventor. He developed many products from peanuts, sweet potatoes, pecans and soybeans. He invented more than 100 ways to use the peanut. And flour and candy were among the 118 products he developed from sweet potatoes.

In 1939 he received the Roosevelt medal for his work in science and agriculture.

More Food by Fewer Farmers for More People

Each agricultural revolution meant that the farmer could produce more food to feed more people. For instance, in the . . .

- 1700's: One farm worker could feed three people.
- 1860's: One farm worker could feed five people.
- 1979: One farm worker feeds 60 people.
- 2000: One farm worker will feed 80 people.

CRAFT CORNER

Bread is the basis of meals around the world. But did you ever think of the other uses to which it can be put? For one thing, it can be used to make a kind of clay.

Bread dough has been used for sculpturing by people for centuries. The Incas, who lived in parts of South America, used figures made of bread dough for their festivals and celebrations.

If your parents bake their own bread, ask for some of their dough. The frozen dough that can be bought at a supermarket also works well.

Or — try making your own. It won't taste good to eat, but it's fine for sculpturing. Remember, don't use or operate the stove without permission and help.

DOUGH THAT'S NOT FOR SPENDING OR EATING

To make bread dough, you need:

- 4 cups flour
- 1 cup salt
- 1 cup cool water

Here's What You Do:

1. Mix the flour and salt together.
2. Slowly add the water and mix.

3. Knead the dough — with clean hands for 5 or 10 minutes.

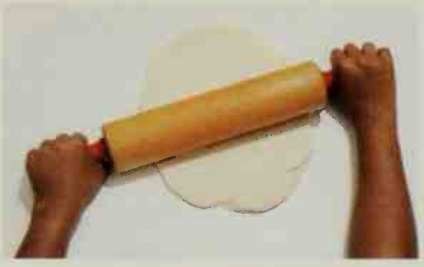
Now try making a basket from the dough-clay.

Here's What You Need:

- Oven for baking
- Dough
- Metal or glass bowl that can go in the oven
- 1 small brush
- 1/4 cup milk
- Small amount shortening
- Table knife
- Rolling pin

Here's What You Do:

1. Grease the outside of the bowl with the shortening. Be sure the bowl is well-covered. Turn the bowl upside down on a kitchen counter.



2. Roll some of the dough with a rolling pin until it is 1/2-inch thick and about a foot long.

3. Cut the dough into strips about 3/4-inch wide.

4. Put a layer of strips around the bowl, 1/2-inch apart. Put a layer of strips over the bowl.
5. Twist one long rope of the dough to make a lip around the bottom of the bread-dough basket. This will be the top rim of the finished basket.

6. Brush the entire basket with the milk. That makes it a nice color once it is baked.
7. Put it in an oven that has been preheated to 350° F. Let it bake for about 1/2 to 1 hour — until it is well-browned.
8. Remove the sculpture from the oven. Let it cool before you try to remove it from the bowl.

Try making other forms, too. Try making a car, or a little house, or an initial.

Name the Food!

Guess what this is.

Hint: It's something an elephant might never forget.

Answer: Peanut

JOKING AROUND

He: Why did George Washington chop down the cherry tree?
She: He couldn't find an apple tree.

Minnie: What was the favorite TV program in prehistoric times?
Pearl: The Dinah Sore Show.

Jack: What was the favorite rock group in prehistoric times?
Benny: The Rolling Flintstones.

RECIPE

Take Some Tacos

Here's an easy-to-make dish that's from south-of-the-border. Vamos! It's time for tacos!

What You Need:

- 12 fully cooked taco shells
- 1 pound ground beef
- ¼ cup chopped onion
- chili powder
- 8-ounce can tomato sauce
- 1 cup chopped fresh tomato
- 1 cup shredded lettuce
- ½ cup Cheddar cheese, shredded
- taco sauce

What You Do:

1. Heat taco shells as directed on package.
2. Brown ground beef and onion in a frying pan. Add chili powder to taste. Drain off extra fat.
3. Stir in tomato sauce and bring to a boil.
4. Reduce heat. Cook 10-15 minutes uncovered, stirring once in a while until mixture is dry and crumbly.
5. Fill heated taco shells with about 2 tablespoons of meat mixture.
6. Mix tomato, lettuce, and cheese. Spoon about 2 tablespoons over beef in taco shells.
7. Add as much taco sauce as you like.

Quick Quiz You Can't Fail

What's the most popular dessert in the United States?

A. Spinach
B. Ice Cream
C. Hot Peppers

DID YOU KNOW?

- Napoleon introduced tomatoes to French cooking in 1800.
- During the California gold rush, lemons sold for $1 each.

AN HISTORICAL FIRST

The first public bakery was opened in Rome, Italy, in 171 B.C. Its specialty was a wheat-honey loaf.

WHAT'S TO EAT?

How Food Gets from the Farm to Your Table

"Hi! What's to eat?" How many times have you asked your parents that question? Probably a lot, right?

Then, just as you are about to sit down at the table, someone says: "Don't forget to wash your hands."

So you rush off to the bathroom, and when you return, the dinner is on the table.

Today there's some baked chicken, lettuce and tomato for a salad, bread and butter or margarine, and, of course, a big glass of milk. Then if you're still hungry after all that, you might even grab an orange on your way out.

But stop! Did you ever wonder where all that food came from?

"Sure," you say to yourself. "That's easy. The chicken came from a chicken, the orange from a tree, and the milk from a cow. Everybody knows that."

But how did all that food get from where it started—the farm—to where it's going to end up—your stomach?

Well, there are three important steps in getting

that food to you. The first is called production. Somebody has to raise the chickens and the cows, and grow the trees and the plants that produce the food you eat. That person is the farmer.

The next step is processing. Milk, for instance, must be processed to make it safe to drink when it reaches your table. Almost all food is processed or packaged in some way.

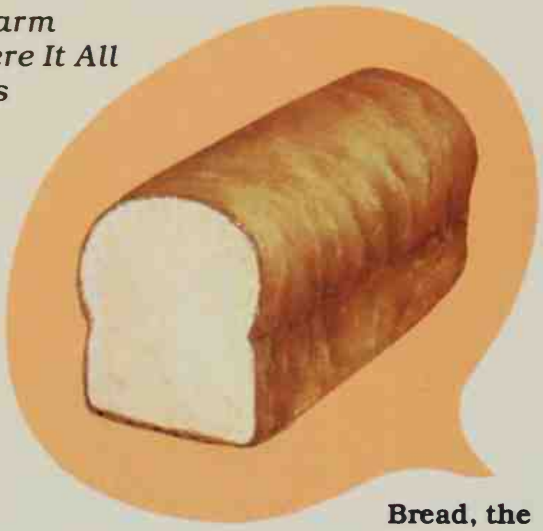
The third step is transportation. Food must be moved from the processing plant to the store where you buy it.

We'll see that each one of those steps — production, processing, and transportation — plays an important role in almost all the food you eat . . . whether it's the baked chicken for instance, or the lettuce and tomato salad; that big glass of milk or the juicy orange. All these foods have gone through the three steps.

Without those steps, in fact, you might never be able to say: "Hi! what's to eat?" ➤

"What's to Eat?" H-m-m! Hot Rolls and Butter

The Farm Is where It All Begins



Bread, the world's most widely eaten food, starts with wheat. Here's how that wheat is grown, and how it is turned into flour to make the bread you eat.

Growing the Wheat

The farm is where it all begins. So we'll start on a farm that produces the world's most widely eaten food — bread!

But, of course, you don't just go out and grow a loaf of bread. Bread is made from flour. And the flour comes from the kernels or seeds of wheat or other grains, such as rye and oats.

Do you live in Kansas? If so, you've probably seen the golden wheat fields that spread out across the prairie for miles and miles. That's because Kansas grows more wheat than any other State.

But Kansas wheat farmers — or any farmers for that matter — don't just fling some wheat seeds at the prairie and hope for the best. There's a lot of thinking and planning, and a lot of hard work that goes into growing a wheat crop.

Many wheat farmers in western Kansas divide their land into two fields. One field is planted with wheat one year; the other field the second year.

That's because it's very dry in western Kansas. It doesn't rain much. So after one field of wheat is harvested — usually in early July — that field is given a chance to rest. For almost a year, the field lies fallow, soaking up and storing moisture from rain or snow.

The following April, the field is ready to be put back to work. Here's what happens:

APRIL: The farmer drives a huge tractor over the field, pulling behind it a great plow that breaks up the ground and kills the weeds that would drink up the moisture. The broken ground helps the soil soak up and store more moisture from spring and summer rains.

MAY-AUGUST: During the spring and summer, the farmer lightly turns the soil again, maybe five or six times, to kill weeds that sprout up.

SEPTEMBER: It's planting time. Wheat planting is called "drilling." That's because the seeds — which are really grains of wheat — are planted with a farm machine pulled by a tractor. This machine is called a drill. Often, the ground is fertilized at the same time.

SEPTEMBER-OCTOBER: Within a week or so after drilling, if there's enough moisture in the ground, the young wheat plant pokes its new green leaves into the autumn sun. The energy from the sun and the plant foods in the soil combine to make the tender wheat plant grow. It continues to grow until the first winter frost. The cold weather stops its growth usually by late October.

NOVEMBER-FEBRUARY: These months are the "no-growth" time. Winter wheat, as it is called, needs this time, or it won't form a head of grain in the spring. Snow is important during these months. It serves as a blanket, keeping the cold and the winds from the wheat.

MARCH: The wheat begins to grow again. Cows are sometimes brought in to graze on it. This often helps the plant grow more heads, and produce more wheat kernels.

APRIL: The cattle are now moved out of the field, and the wheat grows rapidly producing a long green stem and thin "heads" of grain.

MAY: By mid-May the wheat grain reaches its "milk-stage." That's when a white milk-like fluid can be squeezed out of any green kernel that you break open with your fingers. Soon after this, the milk thickens and changes to "dough" in the kernel. Then it hardens.

JULY: Once the wheat is dry and hard, the farmer knows it's time to harvest. The ripe wheat plant is cut, separated from its seeds, and cleaned. On most farms a machine called a combine does all three jobs at once, right in the field. In States where they grow lots of wheat, crews of men and women start harvesting wheat in Texas and move northward through Kansas and into the Dakotas as the wheat becomes ready for harvest. ➤➤

This farm machine is called a combine. Here it is helping a Kansas farmer harvest his wheat. First, the machine cuts the wheat stalks. Then, the grain is separated out of the plants, and falls into a bin. The rest of the heads and stalks are blown out the back of the combine.

The farmer took more than a year and 2 months to bring this one wheat field to harvest. Not all farmers have to wait that long for a harvest. Up in the Pacific Northwest, Washington and Oregon, the climate and soil allow farmers to plant wheat in the spring and harvest it that summer.

All wheat farmers, however, have to fight many enemies of wheat such as armyworms and grasshoppers. Wheat diseases and even weeds can damage or kill his wheat crop. Fortunately, the farmer has ways to fight many of these enemies. But one thing he can't control is weather. Extremely hot weather, or very dry weather, can destroy his crop. Hail or dust storms can also ruin a wheat field.

Yet the wheat farmer continues to struggle against these hazards. And, in doing so, he has made the United States the largest exporter of wheat in the world, and the second largest producer of this food crop.

He also has provided the first and most important step in getting the bread you eat to your table. He has grown the wheat that will be turned into that bread.

But first the wheat must be processed into flour. That's another step in "growing" a loaf of bread. This step is milling. And it's what we'll take a look at next.

Turning Wheat into Flour

Think about the cereal you had at breakfast this morning. Many cereals come from wheat.

Or how about that hamburger you had at lunch? It probably wouldn't have tasted nearly as good without the bun— which came from wheat. And tonight at dinner, as you wind spaghetti around your fork, once again you'll be eating a food that comes from wheat.

Every day, wheat is a big part of the food you eat. Different kinds of wheat are used to make different kinds of products. But most of the wheat is turned into flour. And the flour is used to make everything from breads to noodles, from crackers to cookies.

Turning that wheat into flour is called processing. Here's what happens.

After the wheat is harvested the grain is loaded onto a truck. The truck carries the grain to a tall building, a "grain elevator."

Here, the grain is cleaned, dried, and weighed. Often, people who work at the country elevators also "grade" the wheat. (And you thought only students got graded!) Wheat is graded for its quality, based on government standards.

Grading of wheat is important. It tells the farmer how much money he will get for his hard work in producing the crop.

After the wheat is graded, it may be sold to a miller. The miller grinds the grain into flour. Or the grain may be shipped to another grain elevator, a "terminal elevator." These elevators are much like the country elevators, but much larger. Here the grain is stored until it is shipped to a miller, or sent in ships to other countries.

Once the grain reaches the miller, the process of turning it into flour begins.

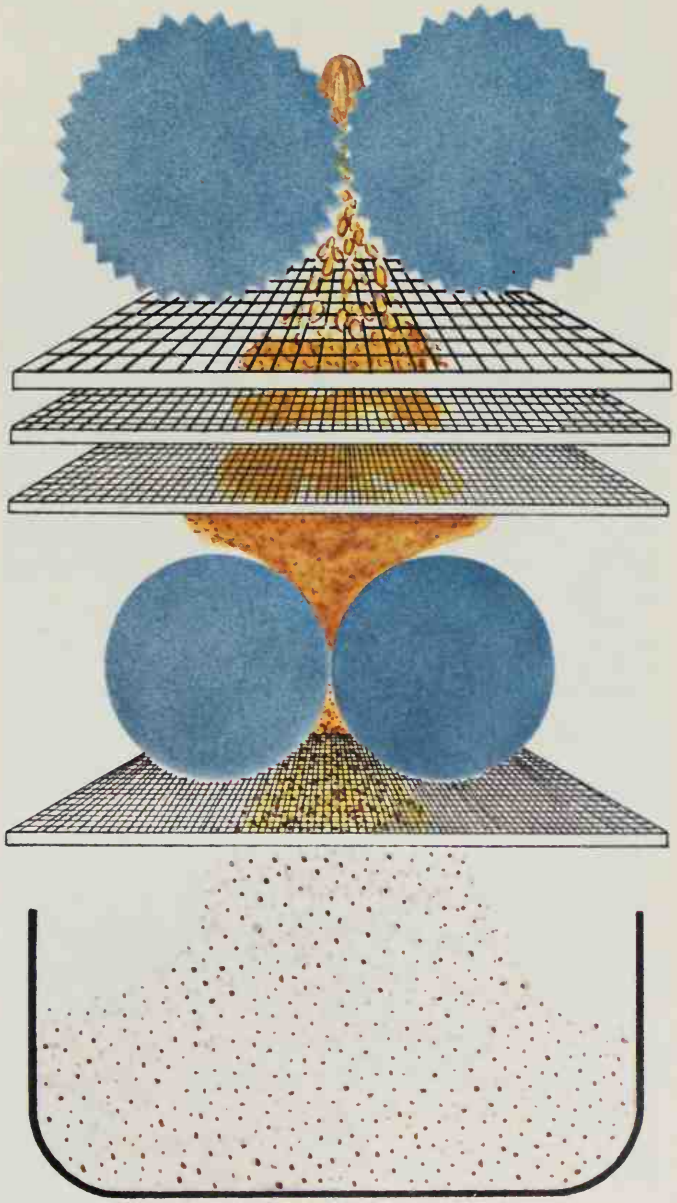
To understand that process, you need to know what a wheat kernel is like. First, there is a covering around the kernel. That covering is called the *bran*. Most bran is used in making feed for livestock but some is used to make delicious bran muffins.

Inside the bran is the *endosperm*. It's the endosperm that soon will become flour.

Finally there is a tiny new plant in the wheat kernel, called the *germ*.

Giant processing machines grind and sift the wheat kernels to make flour.

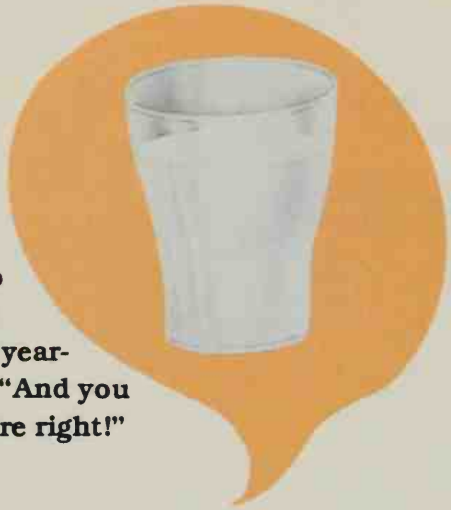
The flour goes into sacks, and is used by bakers to produce over 250 million pounds of bread each week in the United States. That's enough bread for a whale of a lot of slices of bread and butter and sandwiches, isn't it! □



The wheat kernel is ground and sifted many times to make flour.

"What's to Eat?" A Big Glass of Milk

Life on a Dairy Farm



"Most city kids think that if you live on a farm, you have to get up at 4 o'clock in the morning," says 12-year-old Terry Perkins. "And you know what? They're right!"

Terry knows what he's talking about. He's lived on a dairy farm all his life.

"Getting up so early really isn't all that bad though," he said. "Except maybe in the winter. But no matter how cold it is, the cows still have to be milked."

In fact, Terry and his family—mom, dad and his little brother—must make sure the cows are milked twice a day. That's twice a day, every day, 365 days a year.

"It's a big job," Terry tells us. "Even with modern-day milking machines, it still takes until about 7 o'clock in the morning to get our 86 cows milked."

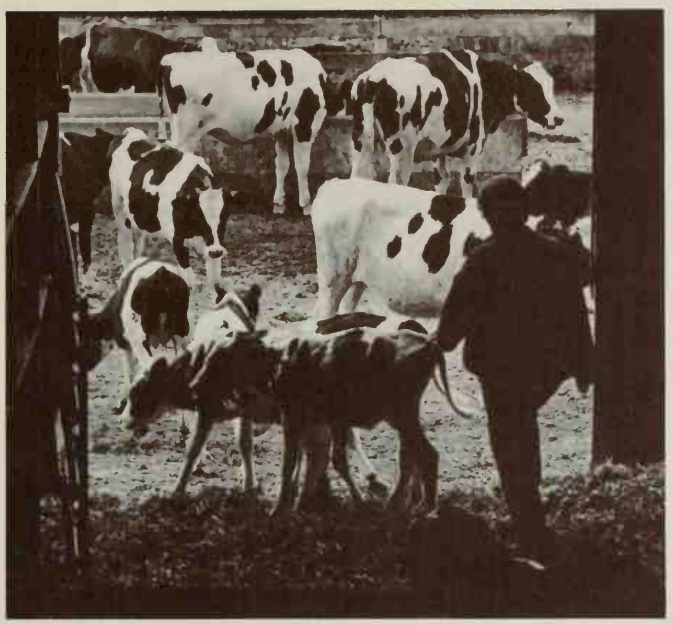
Terry's dad is one of about 300,000 dairy farmers in this country. Does 300,000 sound like a lot? It's not. Of every 450 people over the age of 21, only one is a dairy farmer.

Milking, though, is just one of the many chores Terry helps with on the farm. Cows have to eat, of course. So, Terry and his family also grow the corn and hay that will be fed to the cows.

"In the spring, we're really busy," Terry says. "First, we have to plant corn. We try to do that as soon as the weather is warm enough and the soil dry enough to work the fields. But sometimes the ground is still too wet from the winter. If that happens, the corn doesn't get planted in time to become fully grown before the first frost in the fall, and we get only part of a crop."

Terry also told us about some other problems the weather can bring... like rain or hot winds. Too little rain can stunt the corn's growth. Hot dry winds cut down on the amount of corn the plant grows.

By late spring, Terry hurries home right after school to help with "haymaking." That's when the hay is cut and baled. "You have to



work fast," Terry explains. "If the hay gets wet after it's been cut, it will lose a lot of its nutrients. And dairy cows really need good hay."

Cutting and baling hay usually take two or more days. And Terry and his family will have to do it 12 or 15 more times in different fields all over the farm before summer is over.

Many other jobs throughout the day need to be done. Terry not only feeds the calves but he also helps feed the cows too. And those cows eat an awful lot of feed. Twice a day each cow will eat a bushel of chopped up corn stalks and ears, 10-15 pounds of hay, and several pounds of ground grain. Luckily the chopped corn and hay are usually fed in big mangers. But it's a lot of work even keeping those full.

Taking care of the animals is another job. Sometimes they get sick and hurt themselves. You sometimes have to help the cows give birth to their calves. And you have to clean out the barns, put down new straw for bedding, and haul the old bedding to the field. Then there's always plowing, planting, or harvesting to be done. And, finally, you need to make sure everything on the farm is in good shape.

By 4 o'clock in the afternoon it's time to milk the cows again. "C'mon girls; c'mon Gerty," we hear Terry say, as he urges the cows into the milking parlor. "You've got to treat cows real gentle," Terry tells us. "That way they'll give more milk."

Finally, the afternoon milking is done. It's close to 7 p.m. by the time Terry and his family sit down to dinner.

We asked Terry how he liked living on a farm with all that work to do. "It's really fun," he said. "I go to school with a bunch of city kids. There's lots of stuff they don't know about food and animals and farming because they haven't grown up on a farm. And, oh yeah," he added, "most of the kids in my class don't know how to drive. I've been driving a tractor since I was 7."

After dinner, Terry has some homework to do. Then it's off to bed. After all, 4 o'clock in the morning comes awfully early!

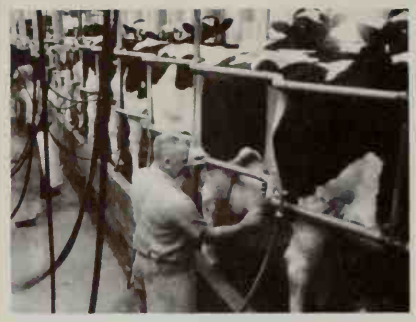
From the Dairy Farm to Your Table: Here's How You Get the Milk You Drink!

Maybe you thought that reindeer were only good for pulling Santa's sleigh. But did you know that in places around the North Pole, people get their milk from reindeer?

Sheep provide much of the milk in Italy and Spain. In India the water buffalo gives people most of their needed milk. And in the desert lands of Arabia, people get their milk from . . . you guessed it: camels!

But here in the good old U.S.A., most of our milk comes from cows. And here's how it gets from the cows to your table.

1 First, the cow is hooked up to a milking machine. Often eight cows are milked at the same time. There are four cows on each side of the "milking parlor."

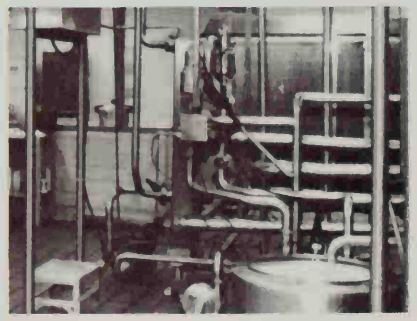


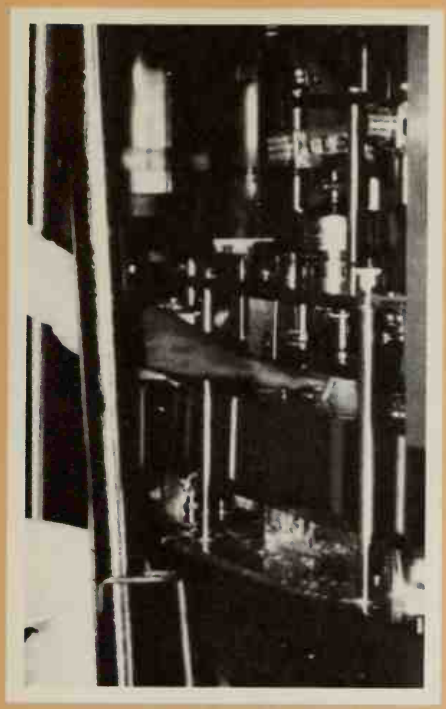
2 Next, the milk begins to spurt into clean glass jars. The jars fill up with foamy milk. It takes about 11 minutes for the average group of cows to be milked.

3 When the cow is finished, the warm milk goes through a glass pipe to a cold tank that chills the milk and holds it at a temperature of about 40°F. That's close to freezing, but the cold temperature keeps the bugs (bacteria) from growing and keeps the milk fresh and tasty.

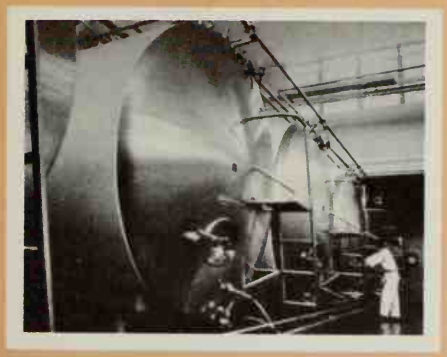
4 From the chilling tank the milk is pumped once a day into a huge tank truck that hauls it to a processing plant.

5 When the milk arrives at the processing plant, it is heated to more than 160°F — only for about 15 seconds — and then it is immediately cooled. This is pasteurization. The high heat kills any bacteria that may be in the milk.

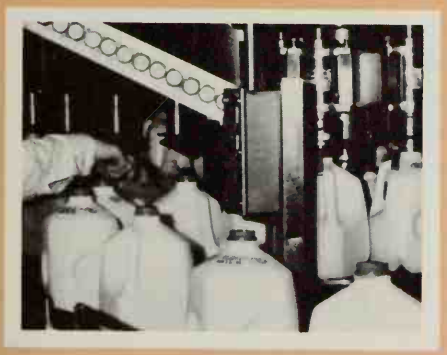




6 In some plants the milk is made into cheese, butter, powdered milk, ice cream and many other products. If, however, the milk is going into cartons for you to drink, it is put through a machine that breaks the fat into tiny globs. This is called homogenization because the milk and cream are now mixed together. Most people think homogenized milk tastes better than milk that is not homogenized. Also, when homogenized milk stands in your refrigerator, the milk and cream stay mixed instead of the cream rising to the top.

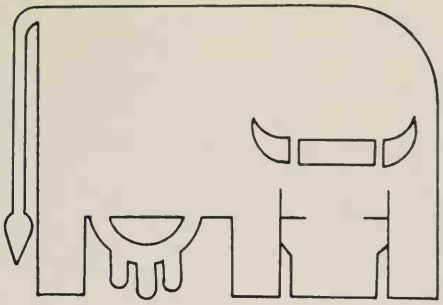


7 Most dairies then add Vitamin D to the milk. This helps the food value. Sometimes, other vitamins are added, too.



8 The milk then goes to packaging machines. The machines fill and seal the cartons or bottles, which are stored in refrigerated rooms.

9 Soon, trucks arrive to pick up the milk, deliver it to stores, and—well, you know the rest.



Cow Facts

Here are three facts about cows. Try stumping your friends with them. But first, see if you can guess the right answers.

- Which State in the United States produces the most milk each year? Hint: It's not Alaska.

(Wisconsin is the winner. But if you said: "States don't produce milk, cows do," give yourself a gold star.)

- How many glasses of milk does the average cow produce in a day?

(62 glasses!)

- A cow in Indiana set a record in 1975. She gave more milk in one day than any other cow ever has. How many quarts of milk did she produce?

(If you said around 100 quarts, that's close enough. Actually, it was 195½ pounds of milk. A quart weighs about 2.1 pounds. The average for a really good cow is 65 pounds—about 30 quarts. Imagine how tired that prize-winning cow must have been after her record-producing day!)

Cow Joke

Why do dairy farmers use cows to help them cut the grass?

Because they're good "lawn moo-ers"!

"What's to Eat?" A Lettuce and Tomato Salad

Tomatoes: Here's How They're Grown

What do cucumbers, string beans, and tomatoes all have in common? If you said: "They're all vegetables," guess again. The truth is that all three of these "vegetables" are really fruits.

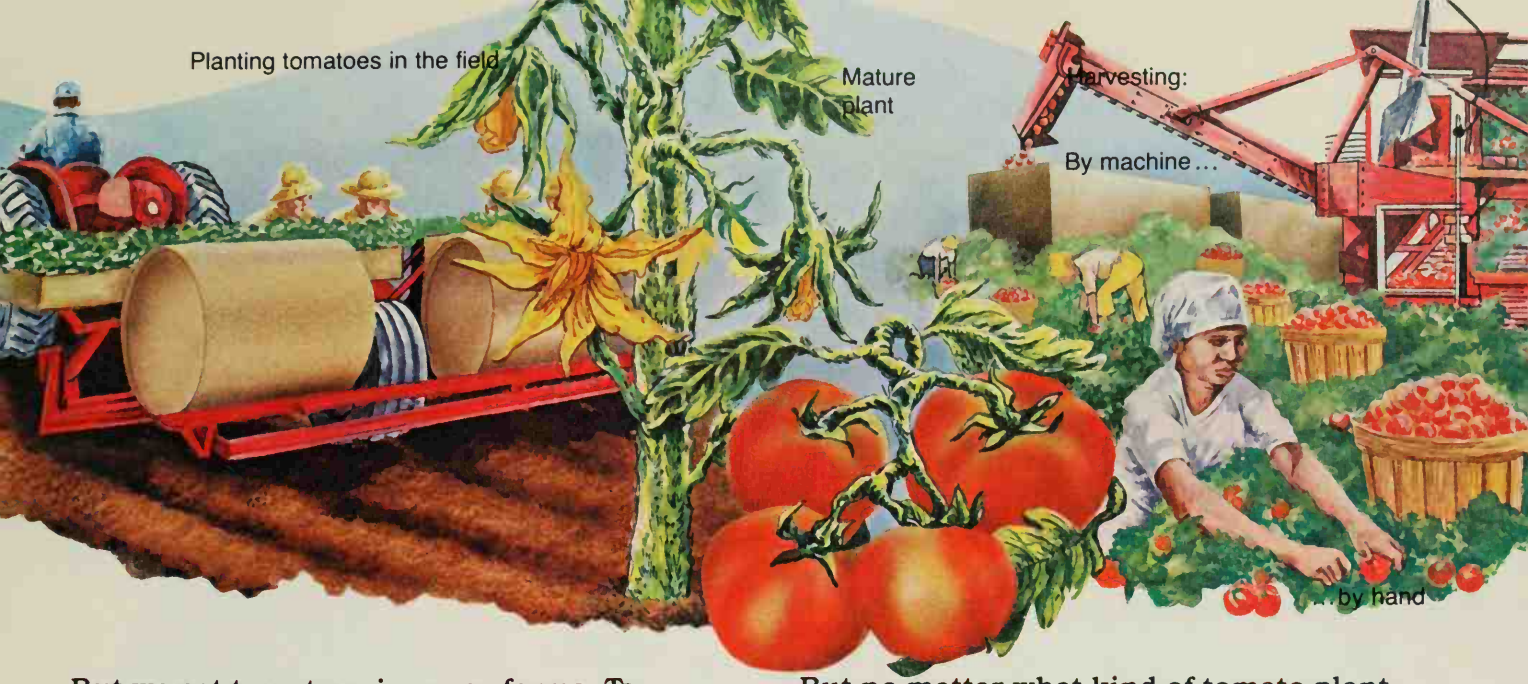
But most people think of cucumbers, string beans, and tomatoes as vegetables. And the way we use and eat these fruits has probably earned them the right to be called vegetables.

Now guess which one of those three fruits —okay, we'll call them vegetables—is the most popular homegrown plant in this country. The answer, of course, is the tomato.

About half the families in the U. S. have their own gardens. And in just about all of those gardens, there is one thing you are almost always sure to find: tomatoes!

But tomatoes haven't always been as popular as they are today. For years many people were afraid to eat tomatoes. They thought tomatoes were poisonous. (That's probably because the tomato comes from the same family of plants as the deadly "nightshade." And that plant is poisonous!)

Today, of course, we know tomatoes are safe and delicious. The average American, in fact, eats about 70 pounds of tomatoes a year. That's a lot of lettuce and tomato salads, isn't it?



But we eat tomatoes in many forms. Tomato juice, tomato soup, and tomato sauce for spaghetti all come from "processed" tomatoes.

Growing tomatoes for those processed foods — or for your lettuce and tomato salad — really isn't too difficult.

Tomato farmers plant their crops in one of two ways. In areas with warmer climates, and therefore longer growing seasons, farmers usually plant their tomato seeds directly in the field. But in areas with cooler climates, farmers often start their tomato crops in a greenhouse and then move them to the fields.

It takes the plant anywhere from a month and a half to three and a half months to produce tomatoes. The "early" plants produce tomatoes in 45 to 65 days. Those tomatoes are usually smaller and not quite as tasty as the "main season" tomatoes.

Main season tomatoes appear about 66 to 80 days after the plants have been put in the field. They usually are larger and tastier than early tomatoes.

There also are late season tomatoes. These usually take 80 to 100 days to grow.

At one time tomatoes were grown for both eating fresh and processing. Now things are different. The tomatoes that go to the processing plants are special varieties grown only for processing. Between 250,000 and 300,000 acres of tomatoes are grown for processing every year.

But no matter what kind of tomato plant the farmer is growing, tomatoes all have one thing in common. They need warm weather and plenty of sunshine to grow. That's one reason why California and Florida are our leading tomato-growing States.

Harvesting tomatoes depends on how the tomatoes will be used. If the tomatoes are going to be eaten fresh, they are harvested just as they begin to turn pink. Usually the work is done by hand. The farmer wants to make sure the tomatoes aren't "bruised" before they get to your table.

The tomatoes are loaded on a truck which takes them to a sorting and packing plant. First, the tomatoes are washed. Then they move along a conveyor belt. Workers look for any bad tomatoes and throw them out. The good tomatoes drop through holes in the belt, according to size. Finally, a machine packages the tomatoes for shipment to your store.

Farmers don't have to be quite as careful in harvesting tomatoes that are going to be processed into other foods. Tomatoes that are going to end up as sauce on top of a pizza, for instance, are usually picked by machine. The machine cuts off the whole plant and shakes the fruit into a conveyor belt. The belt carries the fruit to a bin in a truck. And off they zoom to the processing plant. ➤

Sorting, packing, shipping

Over the years, tomatoes have improved greatly. New plants have been developed which help the farmer grow more tomatoes. Also, these new tomato plants can resist certain diseases that attack them.

Even with these improvements, tomatoes still maintain the vitamins and flavors that make them a favorite food.

But there are still people who say the best tomato is the one that is picked and eaten right from a homegrown plant. □

Tomato Processing

Processing in a large plant is not much different from the process of canning tomatoes in your own kitchen. Except for a couple of obvious things. The processing plants can tomatoes on a MUCH bigger scale. And more quickly. (As many as 1200 cans a minute.) And in those plants almost everything is done by machines.

First the machines wash the tomatoes. Then they peel and sort them. Moving belts carry the tomatoes from one machine to another. Empty cans (or jars) are fed into machines that fill and seal the cans. Then the tomatoes are cooked.

In the case of sauces, juices, and catsup, the chopped tomatoes are put into hot tanks and cooked briefly. Then they're run through screens to break them down further before they're put into cans, sealed, and then cooked once more. The cans are cooled under a spray of cold water. When dry, machines glue on labels. Machines then pack the cans into cartons for shipping.

When you think of tomato processing, you probably think of canned tomatoes, tomato juice, tomato soup, catsup and spaghetti sauce. But there are tomatoes in many other things you eat too. Like ravioli, hamburger relish, spanish rice and pork and beans. In fact, probably not too many of your days are spent without the tomato in one form or another. So, let's hear it for all those delicious tomatoes!

Tom's Tomatoes

In 1781, Thomas Jefferson became the third President of the United States. But 20 years earlier, Jefferson was one of the first persons in our country to grow tomatoes — not for eating, however, but as a plant decoration.

A Long Time in Coming

Spanish explorers first discovered tomatoes growing in Central America in the 1500's. They brought the seeds back to Europe, and the tomato became very popular — for a while. But then it got a bad reputation. And only in the last 150 years has the tomato been used as food in all parts of the world.

Thank You, Colonel Johnson

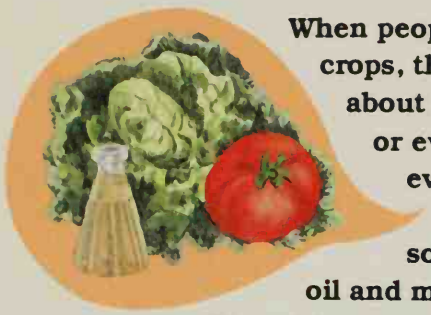
The fact that we eat and enjoy tomatoes today is due, in part, to a man named Colonel Robert G. Johnson. For years many people believed that if you ate a tomato, you would die before morning. Colonel Johnson decided to prove they were wrong.

On September 26, 1820, at 12 noon, Colonel Johnson stood on the courthouse steps in Salem, New Jersey. In front of hundreds of people, he ate — not one — but a whole basketful of tomatoes.

Many people thought he had gone crazy— until, that is, he not only lived, but didn't even get sick.

"What's to Eat?" Dressing for your Salad

An Interview with Mr. Soy Bean



When people think about food crops, they usually think about corn, or tomatoes, or even wheat. But few ever think about soybeans. Yet, soybeans give us salad oil and many other products. If a soybean could talk, what do you think it would have to say for itself? You can't be sure, but an interview with a soybean might go like this.

Ms. Video: Good evening. I'm Barbara Video, and I'm here in Illinois at the farm of the Soy Bean family. As you can see, the Soy Bean family is upset. They say they get no respect. Tonight, we'll be talking with the head of the Soy Bean family, Mr. Soy Bean himself.

Soy: Good evening, Barbara.

Ms. Video: Good evening, Mr. Bean.

Soy: Call me Soy.

Ms. Video: Thank you. I must say you're looking fresh as a daisy.

Soy (Upset): Fresh as a daisy! See what I mean? Even daisies get more respect than

soybeans! Why didn't you say "fresh as a soybean?"

Ms. Video: Excuse me. I didn't mean to upset you.

Soy (Feeling sorry for himself): Soybeans get no respect.

Ms. Video: Perhaps if we knew a bit more about soybeans, that would help.

Soy (Cheered up a little more): That sounds like a good idea. What would you like to know?

Ms. Video: Why don't you begin by telling us where soybeans come from.

Soy (Playfully): Guess!

Ms. Video: Well, judging from your name, I'd say you come from China.

Soy (Disappointed): How'd you guess?

Ms. Video: Just lucky, I suppose.

Soy: Well, you're right. Soybeans have been grown in China for 3000 years. But a lot of people think soybeans came from Cleveland.

Ms. Video: Cleveland? You're kidding!

Soy: Yeah, I am. That was just a little joke. Soybeans have a great sense of humor.

Ms. Video: I can tell.

Soy: Actually, I do have an uncle who grew up in Cleveland. But, today more soybeans live right here in Illinois than in any other State. We soybeans also grow well in Iowa, Missouri, Arkansas, and Indiana.

Ms. Video: I didn't know that.

Soy: Well, here's something else I bet you didn't know. More of us soybeans grow up in the United States than in any other country — including China.

Ms. Video: No, I didn't know that.

Soy: You've probably never given us Soybeans any thought at all.

Ms. Video: Well, now, Soy, that's not exactly true. Why, just last night I asked the waiter to bring me some soy sauce for my Chinese dinner.

Soy: Soy sauce! Is that all you think we're good for?

Ms. Video: Well, I don't know. Perhaps, you could tell us: What are you good for?

Soy: What am I good for? Are you crazy? I guess it never occurred to you that soybeans are used as feed for livestock and food for you human beings, and are even used in some of the products you buy, like plastics, paint, varnish, candles, and soap.

Ms. Video: Hey, that's interesting.

Soy: You bet it is. But nobody ever gives the soybean credit for all those things. Even carrots get more credit than soybeans do.

Ms. Video: What do you mean?

Soy: All over the country, you hear parents tell their kids, "Eat your carrots. They're good for your eyesight." You never hear anyone say, "Eat your soybeans," do you?

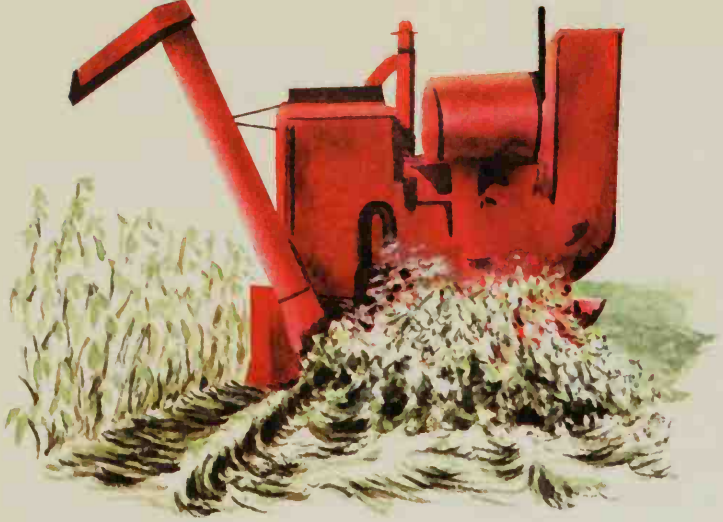
Ms. Video: You, uh, do have a point.

Soy: Well, here's another little tidbit of information. In many countries, people eat soybeans instead of meat, eggs, or cheese. That's because soybeans are a good source of high-quality protein. And they're a lot cheaper than those other foods, too.

Ms. Video: Perhaps you could tell us exactly how soybeans are used.

Soy: Okay, but I'm only going to say this once, so listen carefully.

You see, first we soybeans produce seeds. Are you with me? ➽



Ms. Video: So far, so good.

Soy: After soybeans are harvested, the seeds are cleaned. Then they are crushed into flakes. And oil is removed from those flakes.

Ms. Video: And then the flakes are just thrown away, right?

Soy: Not on your life! Those flakes make up soybean meal which is fed to livestock. Over 90 percent of the soybean crop is fed to animals. The rest of the soybean meal is further processed in different ways, and added to foods like baby food, cereals, even candy. It provides an extra protein source for these foods.

Ms. Video: What happens to the soybean oil?

Soy: I'm glad you asked that, Barbara. About 90 percent of the oil is used for food products. About half of that is used for vegetable shortening and margarine. Think about that.

Ms. Video: H'mmm. I will.

Soy: Anyway, the other half of the oil that is put in food is used for mayonnaise, salad dressings, and cooking oils.

Ms. Video: That's fascinating.

Soy: And you thought all we did was make a little soy sauce. Let me tell you, we soybeans are one of America's most important and versatile crops.

Ms. Video: I apologize.

Soy: Listen, I don't have all day to stand around gabbing, so if you're going to ask me about pests, you better hurry up.

Ms. Video: Pests?

Soy: Sure, pests. Most snoopy reporters who come around here ask about pests and pesticides.

Ms. Video: Okay, what about pests?

Soy: They're real pesty! Har-dy-Har-Har-Ho-Ho! Boy, you really fell for that one, didn't you Barbara? I told you we soybeans have a sense of humor.

Ms. Video: Yes, I can see. You're just a regular Steve Martin of the soybean set.

Soy: Actually pests are mostly weeds and some insects and they used to be a bigger problem for us soybeans than they are today. Farmers have learned how to control those pesty old things. The farmers now have a lot of different pesticides to kill the weeds and insects — they help to protect us.

Ms. Video: I'm glad to hear that.

Soy: Not nearly as glad as we are.

Ms. Video: Just one last question, Mr. Bean. How does the future look for you and your family?

Soy: Terrific. Absolutely terrific. Why it's possible we could someday provide the calories and protein for all the peoples of the world.

Ms. Video: That's what I call a bright future! Well, I want to thank you for taking the time to talk with us this evening.

Soy (shyly): I must admit I was a little nervous in front of the camera.

Ms. Video: Oh, really? You seemed cool as a cucumber.

Soy: Cool as a cucumber! See! There you go again. Why couldn't you have said "Cool as a soybean," or "Smart as a soybean," or "Delightful as a soybean."

Ms. Video: I apologize.

Soy (Feeling sorry for himself again): Soybeans get no respect.

Ms. Video: Maybe I could help you come up with a nice soybean slogan.

Soy: Now you're talking! What do you have in mind?

Ms. Video: Well, from what you've told me, soybeans seem like very strong, healthy, reliable plants.

Soy: Oh, we are! We are!

Ms. Video: So, how about this: "Sound as a Soybean!"

Soy: I like that. It has a nice ring to it. (proudly) Sound as Soybean!

Ms. Video: Once again I'd like to thank you for sharing this time with us.

Soy: Oh, you're welcome, very welcome. And listen, if you ever get to Cleveland, say hello to my uncle for me.

Ms. Video (as she exits): I sure will.

Soy (proudly): Sound as Soybean. I like that! □

"What's to Eat?" Delicious Chicken

Talking With a Broiler Grower

Five sixth-grade city kids tell what they found out about raising chickens!

"If you grew as fast as a chicken, you would have weighed 349 pounds by the time you were 2 months old!"

That's just one of the interesting facts that Paul Young, a chicken farmer, told a group of five sixth-grade students during their visit to his farm.

None of the students had ever been on a farm. So they had lots of questions. What did they find out about raising chickens? Well, we'll let them tell you.

SARA: Well, first of all, we're talking about chickens to eat, not the kind that lay eggs.

PETE: Right. And a chicken that is being raised to be eaten is called a broiler or a fryer.

TOM: The day we visited the farm the chickens were only 2 weeks old. There were about 15,000 of them in this one broiler house.

ALICE: That was really neat to see. Mr. Young told us he raises about 150,000 broilers a year. But some farmers raise a lot more.

TONY: You never really think about where all the chickens come from or how many are grown. Like, did you know that broiler growers raise 3 billion broilers a year?

SARA: I thought it was interesting how fast the chickens grow. It takes them only about 7 or 8 weeks to be ready for the frying pan.

ALICE: That's because of the new kinds of chickens, the way they're fed and what they eat and stuff like that. Years ago, it would take a chicken about 6 months to grow big enough to be sent to the processing plant.

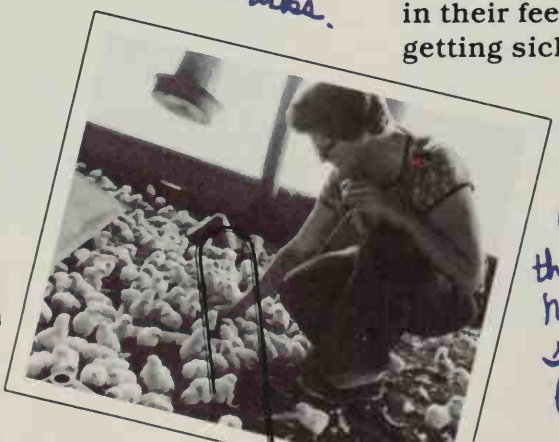
PETE: But now they're given all sorts of special diets to help them grow faster. A lot of broilers even have more nutritious diets than people.

TONY: Yeah, the chickens can only eat what the farmers give them. They don't get to snack on junk food like people do.

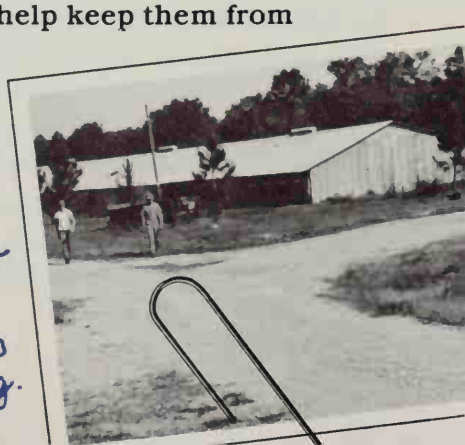
TOM: And there also are vitamins and things in their feed that help keep them from getting sick.

Mr. Young

Mrs. Young with some new chicks.



One of the broiler houses. It's 360 feet long.



ALICE: Yeah, and they even get vaccinated.

SARA: While we were there, we got to help feed the chickens. On the farm we visited, you first fill a cart with feed. Then, you carry it to all the metal feeders in the broiler house. You put scoops of feed into the top of the feeder where it just kind of settles down into a tray at the bottom. But some broiler growers don't even have to do that. The feed is automatically carried around the side of the house in a long trough. All the chickens have to do is walk up and eat.

TOM: I had always thought you just threw some grain out to the chickens that were roaming around the barnyard.

TONY: When we were going through the broiler house, all the chickens were chirping away. But then Mr. Young stopped and whistled one real long note. And suddenly, all the chickens "froze" and stopped chirping.

ALICE: Yeah, their heads popped up, and they looked around. But they didn't make any sound at all.

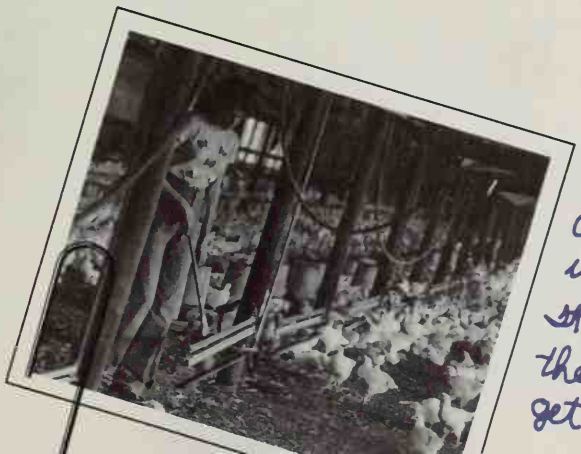
SARA: Mr. Young told us that when they hear a whistle like that, their instinct tells them to be quiet and listen. They think it might be a hawk or something getting ready to attack or swoop down on them.

PETE: But that's not why he whistles. When all the chickens are quiet, he can listen for any signs that some of his chickens are sick.

TOM: Yeah, like if the chickens are having a hard time breathing, he can hear a rattling sound. This means he better get some medicine to his flock right away.

TONY: The broilers are not too hard to take care of, though. You just have to make sure they have enough food and water.

SARA: And you have to make sure they're warm. That's important. But if it gets too hot, the chickens won't eat. You also don't want them to get cold or they will get sick. So if the temperature gets too low, you have to light gas heaters in the broiler house. ➤➤



Patty Young cleaning the water feeder. It rises as the chicks get bigger

One of the Young's cows with a new calf. We named it "White Feet".

TONY: One thing I never knew was that most chicken farmers don't really own their chickens.

TOM: Right. They're owned by a company. The company gives the farmer baby chicks to raise. It also gives the farmers the feed and tells them how much to feed them and when and where to sell the chickens. You know, stuff like that.

ALICE: I think Mr. Young said that only about 1 percent of all 30,000 chicken farmers in the U.S. own the chickens they raise.

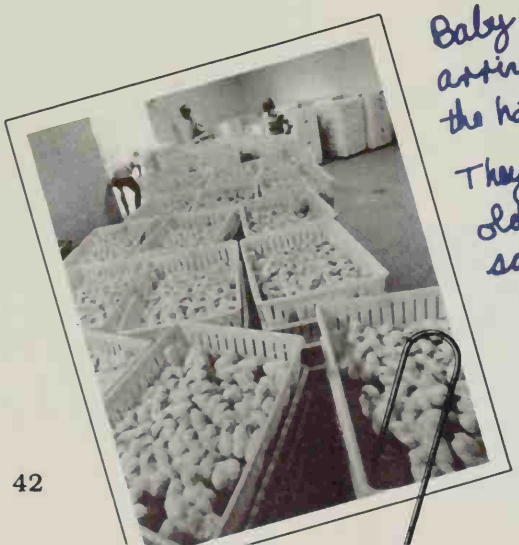
PETE: And, the companies that own the chickens own the processing plants, too. That's where the chickens go to be slaughtered, cleaned, and gotten ready to be sent to the stores. Anyway, the company that Mr. Young raises chickens for pays him by the pound for the chickens he raises.

TOM: Another thing we found out about the processing plant is that every part of the chicken is used for something. Take the feathers. They're used to make meal or other products to feed the chickens.

SARA: At the processing plant the chickens also get graded for their quality so people know what they're buying. Then they're packaged and taken to places that distribute food to the stores.

PETE: And it doesn't take very long either. In one day a chicken can go from the farm to the store. But usually, I think, it takes from 2 to 4 days. That's still pretty fast, though. And it means that people can buy fresh chickens any week of the year.

TOM: I think everyone should get a chance to see a chicken farm sometime—not just kids. It really makes you understand better all the work that goes into getting the food to us that we eat. □



Baby chicks arriving from the hatchery. They were one day old when we saw them.

This map Patty Young made for class shows where most chicken farms are.

Chicken Facts

Eating Chickens

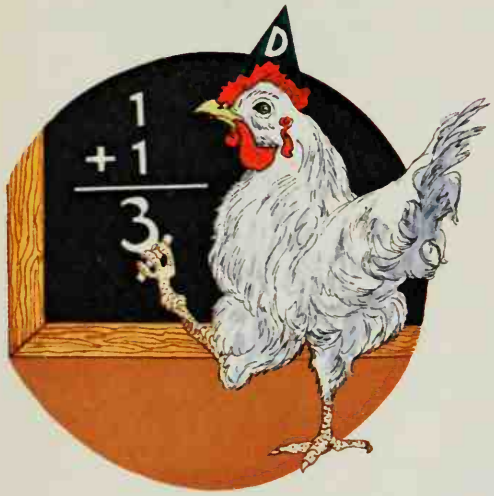
Forty years ago, Americans ate only about half a pound of chicken a year. Things have really changed.

Would you believe it's now 37 pounds? That's right. Americans eat an average of about 37 pounds of chicken a year. That's a lot of drumsticks!

A Real Egg Factory

Forty years ago, the average egg-laying hen laid 100 eggs a year.

She's more than doubled her egg-laying ability. Today, an average hen lays about 240 eggs a year. Let's hear it for the hen!



Go To The Head Of The Class

Elephants are said to have long memories. Hogs are very good at solving problems. But the chicken? Well, the poor chicken would probably never go to the head of the class. Chickens are just not very smart.

"You're a Chicken!"

Why do some people say, "You're a chicken," when they mean you're afraid to do something? Why don't they say, "You're an elephant," or "You're a horse?"

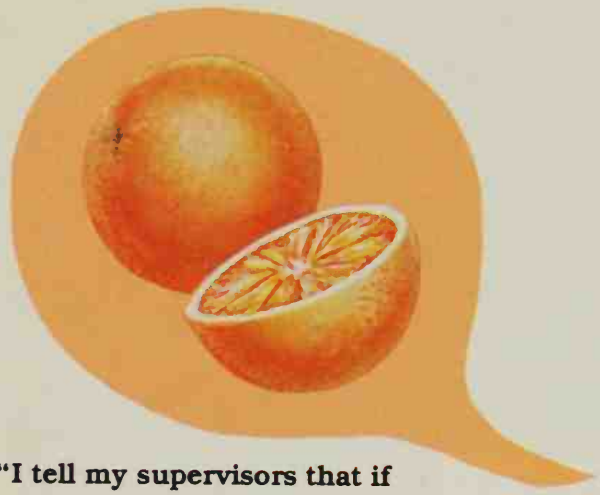
Maybe the reason is chickens are small and can't defend themselves very well. So, to survive danger, they must run or fly away.

Would You Believe . . .

. . . There are more chickens in the world today than there are people! And the number of chickens is growing faster than the human population. It's true!

"What's to Eat?" A Fresh Orange for Dessert

An Orange Grower's Farm



"I tell my supervisors that if they don't get their cars scratched up, they aren't doing their jobs."

What kind of a job do you think that is? Stunt car driver? Drag strip racer? Cab driver?

Actually, the answer is none of the above. The person who's speaking is an orange grower.

"My supervisors can't do the job I want them to unless they're out in the orange groves," he says. "And when you drive through the groves, you get orange tree branches slapping across the sides of the car all the time."

Checking the condition of their trees is almost a daily job for orange growers. If temperatures fall below freezing, for instance, trees can be killed, or branches damaged. Damaged branches produce fewer blossoms. And fewer blossoms mean fewer oranges.

. . . and empties the bag into a big box.

A fork-lift truck puts the boxes of oranges onto a truck . . .

. . . and off they go.

A freeze can also break the juice cells inside the orange, and cause the juice of the fruit to evaporate through the skin. This leaves the inside of the orange dry and pulpy. Fortunately, freezing weather doesn't hit the orange-growing areas too often.

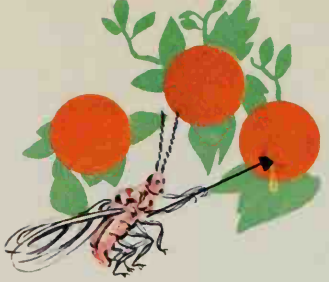
But there are other things that can hurt orange production as well. Insects may attack the leaves and twigs of the trees. A virus or other diseases may weaken or kill a tree.

Even a tree's growth has to be watched closely. As orange trees grow larger, the branches between trees grow closer together. That keeps sunlight from reaching the lower branches. So trees have to be trimmed about every two years.

All this is the work that goes into producing the 40 billion oranges grown in the United States each year. That's an average of 80 glasses of juice, and 30 eating oranges per person.

Today the United States produces more than twice as many oranges as any other country. Oranges, however, weren't always as available as they are now. Less then 100 years ago, oranges were a luxury. They were eaten only on special occasions, such as birthdays, and for special desserts. But today oranges are one of our leading fruits. Still, some people say an orange grower really isn't a farmer. But most grove owners would disagree. As one orange grower in Florida put it: "I own acreage; I grow crops on it; I harvest it. I'm farming." ➽

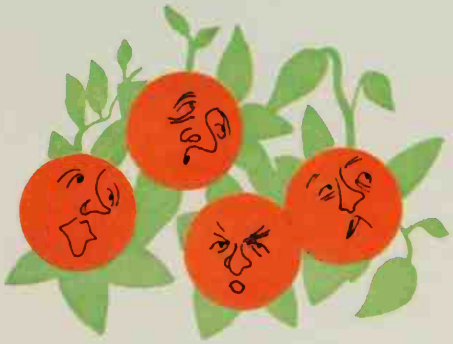
Truth or Baloney About Oranges



How much do you think you really know about oranges? Let's find out.

Here are some statements about oranges. The first group tells about growing oranges. The second group tells about processing oranges. And the third group —well, it just tells some interesting or unusual facts about oranges.

But here's the catch. In each group, there is one sentence that is pure Baloney! Can you figure out which sentence that is? Make your choice. Then, we'll tell you the real Truth . . . or Baloney . . . about oranges!



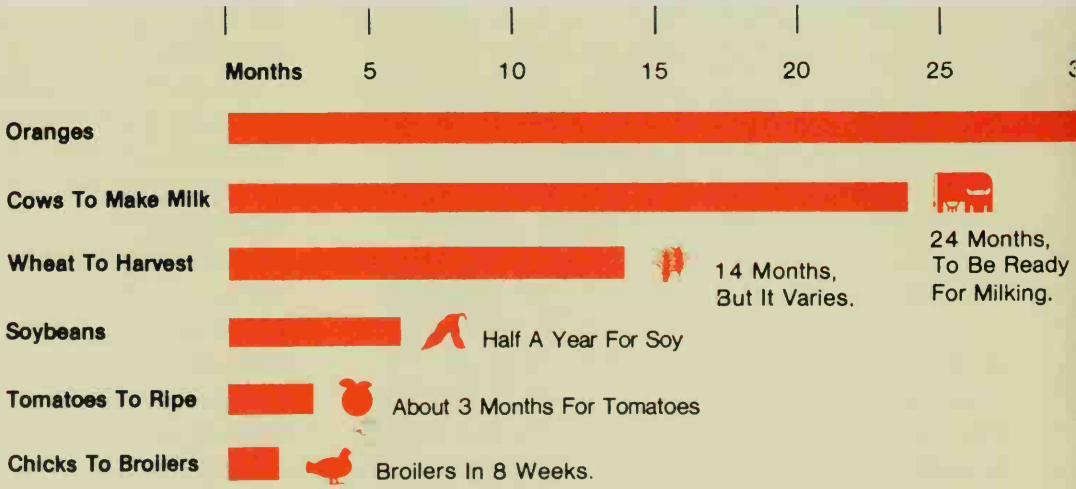
Group I: Growing Oranges

1. It takes 5 to 8 years for one orange tree to produce enough oranges to pay for its upkeep.
☐ Truth or ☐ Baloney?
2. In order to become bright orange in color, oranges need night temperatures below 50° F. during their ripening period.
☐ Truth or ☐ Baloney?
3. As long as a cold spell doesn't freeze the tree, oranges can stay ripe on the tree for years.
☐ Truth or ☐ Baloney?
4. The orange's worst insect enemy over the years has been pests called scales. (That's Truth!) But in recent years, the orange grower has learned to fight the scale insects with the help of another insect: the wasp.
☐ Truth or ☐ Baloney
5. If a freeze is expected, some orange growers use gas heaters in their groves to keep their trees from freezing.
☐ Truth or ☐ Baloney?

Group II: Processing Oranges

1. An orange can have up to ten seeds in it — but only ten — and still be called a "seedless" orange.
☐ Truth or ☐ Baloney?
2. Oranges you buy in the supermarket have usually been picked about a year before you buy them.
☐ Truth or ☐ Baloney?
3. A red food-dye is often added to ripe, green-colored oranges to give them their orange color.
☐ Truth or ☐Baloney?
4. Most of the oranges grown in the U. S. are processed into one of three kinds of juices: concentrated, chilled, or canned.
☐ Truth or ☐ Baloney?
5. In an orange-packing plant, only about one in four oranges is good enough to be stamped: U.S. Grade No. 1.
☐ Truth or ☐ Baloney?

How long does it take all the things you're having for dinner to grow?



Group III: Interesting or Unusual Facts About Oranges

1. If Rhode Island had as many orange trees growing as Florida, California, and Texas have, almost the entire State would be covered with orange trees.
☐ Truth or ☐ Baloney?
2. Green-colored ripe oranges are not very juicy and don't taste as good as orange-colored oranges.
☐ Truth or ☐ Baloney?
3. Until the 18th Century, oranges were considered a delicacy in Europe, and eaten only by kings and queens and other titled nobility.
☐ Truth or ☐ Baloney?
4. It's possible to grow a tree that would produce an orange, a grapefruit, a tangerine, a lemon, and a lime — all on the same tree.
☐ Truth or ☐ Baloney?
5. There's one kind of orange that has what looks like a belly button, and is called a Navel orange.
☐ Truth or ☐ Baloney?

Answers

Group I

Did you guess that sentence No. 3 is pure *Baloney?* All of the others are true.

Ripe oranges can stay good and tasty for weeks, sometimes months. But for years? Baloney!

Group II

No. 2 is pure *Baloney!* All of the other sentences are true.

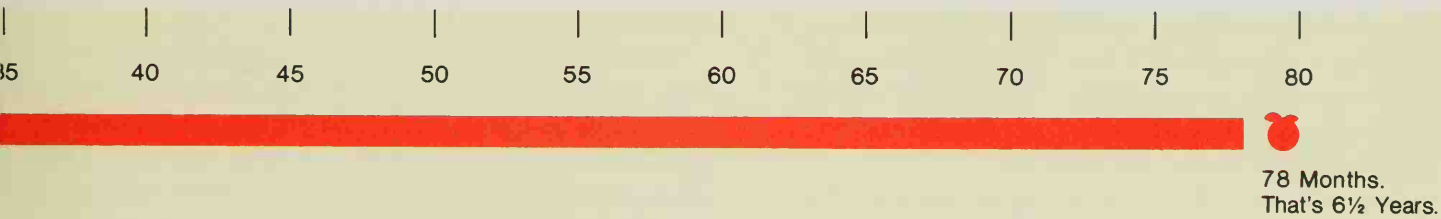
A lot of fruits and vegetables have to be picked just as soon as they are ripe. But not the orange. It will stay good on the tree.

Group III

No. 2 again is pure *Baloney!* All of the other sentences are true.

Green-colored ripe oranges are, indeed, just as tasty and good to eat as orange-colored oranges. But many people think that an orange is only ripe if it's orange-colored. If they didn't think that, it could save the packing houses and the consumer a lot of money. And that's the Truth.

So, how did you do? Did you guess the real Truth . . . or Baloney about Oranges?



"What's to Eat?" How That Food Gets to You

The Food Transportation System

Transportation, the third important step in getting food from the farm to your table, makes it possible for you to eat such things as oranges and lettuce and strawberries even though they may be "out of season." Here's how.

Every day, tons of milk, fresh fruit and vegetables, meat and chicken, bread and butter, and hundreds of other food items flow into grocery stores across the country.

We've seen how some of that food is grown. And we've taken a look at some of the problems farmers must face in growing their crops or raising their livestock.

We've also seen how some of those crops and livestock are processed into the food we eat. We've seen that some crops, like the tomato, move quickly from the farm to your kitchen table. Other crops, like wheat, must go through many steps before they reach your table as bread or cereals.

But there's still one step in getting all that food to you that we haven't talked about. Somehow that food must move first from the farm to the processing plant and then from the plant to your local grocery store. To move all that food, the United States has developed one of the best food transportation systems in the world.

Moving food from one place to another may seem like a simple enough task. But think about these facts:

- There are more than 33,000 supermarkets in the United States. And that doesn't include the thousands of smaller grocery stores and convenience stores throughout the country. (There are more than 130,000 of those!)
- Supermarkets stock as many as 10,000 different food items at any one time.
- It takes hundreds of thousands of trucks of all sizes and kinds to move food to the stores.

Without this vast food transportation system, there would be many things you might never get to eat. Let's say you live in Michigan, for instance. And you want a tall glass of orange juice. You might have to drive all the way to Florida or California in order to get it.

Instead, the food transportation system brings that orange juice — as well as many other food items — to you. Here's one way it works:

1. The orange grower in Florida grows the trees that produce the oranges.
2. He then sends the oranges by truck to a processing plant nearby.
3. The processing plant turns the oranges into orange juice. (continued on page 50)

Food Distribution Centers

Every day, 24 hours a day, 6 days a week, huge trucks pull into food distribution centers all across the country. Some of the trucks are bringing food from the processing plants or food manufacturers. Other trucks are loading up food to take to the supermarkets.

Food distribution centers store many different kinds of food. One center, for instance, has 11,000 different food items waiting to be shipped to stores at any one time.

Those food items will be sent in all different directions — to more than 100 different stores. Some are as far away as 150 miles.

The food at the centers may be stored anywhere from a few days to a few months. Sooner or later, though, it will all find its way to your table.

(continued from page 48)

4. The orange juice is then sent by truck to a place in Michigan for storage. That place is called a food distribution center.

5. Your local store manager calls the food distribution center nearest his or her store. The next day orange juice is delivered to the store — again by truck.

6. That afternoon, you walk out of the store — orange juice in hand.

Those are the steps for getting just one kind of food — orange juice — to you. And it's taken many people and trucks to move it to your store. But hundreds upon hundreds of other foods must go through similar steps throughout the country. You can imagine what an enormous job that is.

Tonight at dinner, think about all the different kinds of food that are on the table. Where did it all come from? How was it processed? And how did it finally get to your table?

For much of the food that's there, now you know! □

Getting It All to You

As much as 90 percent of all perishable food you eat is moved from the farm to the processing plant to the food distribution centers to your store in the same way—by truck.

But food is transported in other ways as well. Pineapples from Hawaii, for instance, are shipped by air. And strawberries, too, are usually moved long distances by plane.

Railroads, on the other hand, often move such crops as wheat, corn, lettuce, and potatoes. And river barges, too, help get many kinds of food from one place to another.

But no matter how the food is transported, you can almost always be sure that the food you want is going to be at the store when you want it. And, for that, we can thank the food transportation system.

CRAFT CORNER

Potatoes are an important crop and an important food. But did you ever think they'd be used for printing? They can be — by you!

You can make a design with a potato stamp, or just print your initials on wrapping paper, stationery, place mats, or decorative boxes.

For centuries, printers used a technique like this to make designs. They used — and some still use — wood blocks dipped in paint or ink.

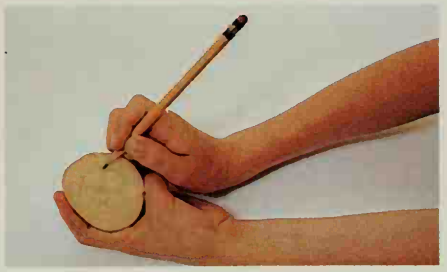
PRESS A POTATO PRINT

Here's What You Need:

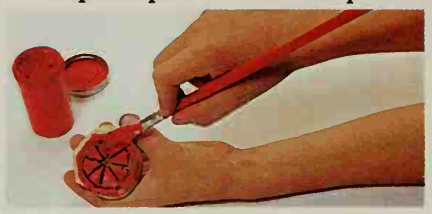
- Small sharp knife
- Potato
- Newspapers to protect your working surface
- Cutting board
- Brush
- Paint — watercolors, tempera — or colored ink
- Heavy paper or cloth to print on

Here's What You Do:

1. Cut the potato in half.
2. With a pencil, draw the design you want on the potato.



3. Cut away the part of the potato that isn't part of the design. The design should stand up about 1/4 inch when you finish cutting.
4. Brush paint on the design or dip the potato into the paint.



5. Print the design on paper by pressing. But don't press too hard — or you'll have mashed potatoes. Don't be discouraged if your first prints aren't too terrific. It takes some experimenting.
6. Remember: The potato has to be repainted before every print. Once you get a good print, try it several ways: sideways, upside down, even overlapped.

DID YOU KNOW?

- Whey is the liquid left over when milk has formed curds and is made into cheese.
- A peanut isn't a nut. It's a member of the legume family.

RECIPE

A Meaty Salad

Do you like chicken? Do you like fresh fruits? Do you like a meal that's quick and easy to make? Your wish has been answered. Here's everything you like all in one dish.

What You Need:

- About 3 cups of chicken cut into chunky pieces. (The chicken's cooked, of course.)
- ¾ cup chopped celery
- ¾ cup red grapes, halved and seeded
- 20-ounce can pineapple chunks in natural juice, drained
- 11-ounce can mandarin oranges, drained
- ¼ cup chopped pecans
- ¼ cup salad dressing
- Some lettuce leaves

What You Do:

1. Toss chicken, celery, grapes, pineapple, oranges, and some of the pecans together lightly.
2. Gently mix salad dressing with chicken mixture. Chill.
3. Serve on lettuce leaves and decorate with pecans.

Name the Object!

Plink. Plink. It's something to drink.

Answer: Water

A FOOD PRODUCING FIRST

Lemonade was first made in Paris, France, in 1603.

JOKING AROUND

Joking Around with Sue and Lou

Sue: When do cows wear bells?
Lou: When their horns don't work.

•

Sue: What runs around a field, but never moves?
Lou: A fence.

•

Sue: Why did the farmer's daughter throw the churn out the window?
Lou: She wanted to see the butterfly.

•

Sue: What do you get when you cross a grape with a lion?
Lou: A grape nobody picks on.

•

Sue: Why did the farmer go over his field with a steamroller?
Lou: He wanted to raise mashed potatoes.

•

Lou: From where did the baby ear of corn come?
Sue: The stalk brought it.

•

Lou: If you raise corn in dry weather, what do you raise in wet weather?
Sue: An umbrella.

Quick Quiz You Can't Fail

Which one of these products provides the most cash income to farmers?

A. Petunias

B. Cattle and calves

C. Yogurt

CAN SMART SHOPPING REALLY SAVE MY FAMILY MONEY?

A Tour of a Supermarket and Other Places We Get Food

A Play in Two Acts

Supermarkets. There are so many different things inside that if you stopped to look at each one for just 30 seconds, you wouldn't get out of the store until nearly 11 days later.

Supermarkets are where most people get most of their foods. And the more than 10,000 items in the big stores can seem pretty confusing.

How can you decide what to buy? Which foods are the best deals? Why is the supermarket laid out the way it is? Why are the fruits and vegetables usually in the corner? Why is the meat often in back?

You can find the answers to these questions and others in this play. It's called "The Adventures of Mr. Supermarket." →

The Adventures of Mr. Supermarket

Act 1: Scene 1: Vegetables

CAST OF CHARACTERS

Mr. Supermarket — He looks a lot like Superman, but he's actually super only when it comes to knowing about supermarkets.

Larry — age 12, a typical young shopper.

ACT ONE

Scene 1: *Larry is standing inside the supermarket looking around. He seems a little confused.*

Suddenly, from out of nowhere, Mr. Supermarket zooms in. He lands next to Larry.

Larry: Wow! It's Superman!

Mr. Supermarket: Rats! I just don't understand it. Everybody is always making the same mistake.

Larry: Huh? You mean you're not Superman?

Mr. Supermarket: No, my name is Mr. Supermarket. But some day I've just got to find out who this guy is who goes around looking like me all the time.

Larry: Mr. Supermarket? Gee, I don't think I've ever heard of you.

Mr. Supermarket: Well, you see, I know all there is to know about supermarkets. That's how I got my name. By the way, what's your name?

Larry: It's Larry.

Mr. Supermarket: Harry, huh? Well, let's see how I can help you with your shopping, Harry.

Larry: Thanks, but it's Larry.

Mr. Supermarket: Oh, well, grab a cart, Terry. Now what's the first thing you need?

Larry: Larry!!

Mr. Supermarket: Berries, huh? They're right this way. Just follow me.

Larry *(following Mr. Supermarket):* Oh, well.

Mr. Supermarket: Did you know that from the tip of my cape to the front of your basket there are as many as 310 different food items? Not only that, but the typical shopper makes one purchase about every 30 seconds while he is in the store. *(Mr. Supermarket races down the aisle. He's looking over his shoulder at Larry, so he doesn't see where he's going.)*

Larry: Watch out! You're heading right for the...

Mr. Supermarket *(crashing into a pile of oranges):* Rats! A little accident. Oh, well, it happens all the time. *(He picks up some oranges rolling on the floor, and puts them in a box for damaged fruit.)* That's why we put fruits and vegetables here in the corner.

Larry *(laughing):* So people can run into them?

Mr. Supermarket: No, no! They're here because there's more room in the corner than in the aisles. So there's plenty of room for people who work here to come in and clean up these little messes without getting in the way of customers. Even when there are no spills, store clerks have to spend a lot of time in this section. They bring out fresh supplies and keep all these piles neat.

Larry: This sure is a colorful part of the store. All the greens and reds and yellows remind me of jelly beans. By the way, where would I find some....

Mr. Supermarket: Not so fast, Gary. I've got a question for you. Do you notice anything here that wasn't here a few months ago?

Larry *(looking around and thinking hard):* I've got it! Sure! Peaches and blueberries. We haven't had them all winter.

Mr. Supermarket: You keep your eyes open, don't you Perry?

(Larry starts to correct him, then just rolls his eyes and shrugs.)

Mr. Supermarket: Fruits and vegetables have growing seasons. We usually get only the delicate fruits when they're in season. But there are other foods that people just don't want to do without no matter what season it is. So, we ship those foods around the country all year long. See, something can be *in* season in the South, and out of season in the North. So the South can ship food up to the North. Or the West can ship to the East or the East to the West.

Larry: Doesn't the food cost more if you have to ship it a long distance?

Mr. Supermarket: Sure. Fruits and vegetables are cheapest when you buy them locally in season. They're highest priced in the off seasons, and when they first come into season. That's when everybody's real anxious to get them, but there isn't enough yet to go around.

Larry: How can you tell what fruit is in season when?

Mr. Supermarket *(throwing open his cape):* How can you tell what fruit is in season when? Simple. I just happen to have a chart here. Take a look.

Larry: Thanks.

Mr. Supermarket: Well, I've got to fly. Bye.

Larry: Hey, wait! We have the whole rest of the store to go through. Meats. Dairy food. Canned and frozen food. And I've got all sorts of questions.

Mr. Supermarket: And I'm just the man to give you the answers, Carry.

Larry: IT'S LARRY!

Mr. Supermarket *(looking around):* WHERE?

Larry: Right here!

Mr. Supermarket: Now listen, we don't have time for games. I'll meet you in the dairy section. ➜

Scene 2: The Dairy Section

Scene 2: *Dairy Section, moments later.*

Mr. Supermarket *(lounging on top of the dairy case):* Notice anything funny about this dairy case?

Larry: Yeah, you're sitting on top of it.

Mr. Supermarket: No, that's not what I mean. I mean do you notice anything funny about where the dairy case is?

Larry: It's on the side of the store.

Mr. Supermarket *(smiling; he thinks he's got Larry):* Yes, but why?

Larry: I bet it has something to do with refrigeration. All the refrigerated foods seem to be along the walls of the store.

Mr. Supermarket *(looking a bit disappointed):* Rats! I can usually stump a person with that question. Well, you're right. Supermarkets put most of the refrigeration units all along the walls. That's where you'll find meats, dairy foods, fruits and vegetables.

It makes it easier to keep shelves stocked up because there's usually a little more elbow room on these aisles around the outside of the store. And we don't have far to carry the food. Storage space is often just on the other side of the refrigeration units. *(His face brightens with the next question.)* But I bet this will stump you. Which size eggs are the best deal?

Larry: Grade B?

Mr. Supermarket *(jumping up and down with glee):* Aha! I STUMPED YOU! I STUMPED YOU! *(Realizing how foolish he must look):* Oh, excuse me. You see, grades have nothing to do with size. Grades deal with quality. Grade AA and Grade A mean

the eggs have a firm yolk. Grade B eggs, which aren't found in the retail stores very often, have a thinner yolk and more white. They're good for scrambling and baking.

But as for size—jumbo is the biggest. Then comes extra large, large, medium, small and finally peewee.

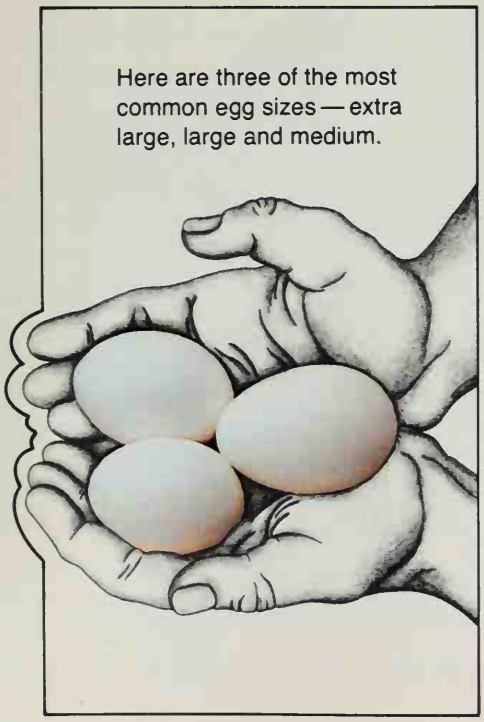
Larry: But what's the best deal?

Mr. Supermarket: Here's a tip. If the difference between any two sizes is more than 8 cents, usually the smaller eggs will be a better buy.

And that's the truth... egg-zactly.

Larry *(groaning):* Ugh, what a pun. I'll meet you at the meat counter, Mr. Supermarket.

Mr. Supermarket: To the meat counter! □



Here are three of the most common egg sizes—extra large, large and medium.

Scene 3: The Meat Counter

Scene 3: *(Larry is standing behind the meat counter, waiting for Mr. Supermarket)*

Larry: Beat you, Mr. Supermarket.

(Mr. Supermarket gives Larry a dirty look. Then they both start laughing.)

Larry: Look at all this meat!

Mr. Supermarket: You see this mark?

Larry: You mean: Choice?

Mr. Supermarket: Right. That's a grade of meat set by the Federal Government. And that's the grade you see most often in supermarkets.

Larry: But I've also heard of U.S. Prime meat.

Mr. Supermarket: U.S. Prime is the tenderest and juiciest meat of all. But you usually don't see that in the grocery store. It goes to good restaurants.

Larry: What's that other mark on the meat?

Mr. Supermarket: That's an inspection mark. It's inspected by the government to make sure it is clean and safe.

Larry: How do you read the price tag on all this meat? The tags have so many numbers, I can't tell which one is the price!

➜

Mr. Supermarket: Allow me.

(He lifts up the package of eye round roast and holds it out.)

This means that this meat sells for $2.99 per pound. This one weighs 3.70 pounds. And the total price is $11.06. But there's one thing to remember! You don't judge a meat only on its cost per pound.

Larry: Sure, I know that. You have to think about taste, too.

Mr. Supermarket: Besides that, I mean. You have to think about how much the meat costs per serving, not just per pound. With meat that has lots of bones and fat, like T-bone steak, spareribs or rib roast, you might get only about two servings per pound.

But with meats that have little or no bones, like rump roast or boneless ham, you might get three servings per pound. Boneless beef might cost more per pound—but less per serving.

Larry: Gee, thanks for the tip. But now I have a question for you, Mr. Supermarket. Why's the meat counter all the way in the back of your store?

Mr. Supermarket: Well, one reason is so we can have the space to keep a butcher behind the meat counter to cut what you want. But even stores without a butcher need nearby space to prepare the meat and keep extra supplies in storage. The meat counter could be on any side. But if it's in back, it has the extra advantage of drawing customers all the way into the store. We want them to see all the wonderful things we have for sale.

Larry: And the more they look around, the more they might buy.

Mr. Supermarket: You catch on fast. Well, let's get going. Oop! The wheel on my shopping cart got stuck. Mr. Goldman wouldn't like that.

Larry: Who?

Mr. Supermarket: Sylvan N. Goldman—he's right there in your hands.

(Larry jumps back from his shopping cart.)

Mr. Supermarket: At least, his invention is. Goldman is the father of the shopping cart. Came up with the idea in 1936.

Larry: What did people do before that?

Mr. Supermarket: They carried things around in their own bags or their hands. That meant they couldn't buy very much at one time. But these modern carts can carry up to 1,000 pounds. That's half a ton.

Larry: Wow!

Mr. Supermarket: Well, now that I think about it, I'm actually getting a little tired. I think I'll just curl up in my cart for a little afternoon . . . z-z-z-z!

END ACT I

INTERMISSION

Announcer: Don't go away. We'll be right back with Act II of our exciting drama: *The Adventures of Mr. Supermarket.* But right now it's time for a short intermission. So sit back and relax, while we have a word from our sponsor.

Sponsor: When you enter a huge supermarket, do you sometimes feel alone, confused, even—SCARED! Well, don't be. Shopping can be made easy once you know how to read the labels on all the cans and packages in the store.

These labels are actually like little "shopper-helpers." Each one tells a story. And there's even more help for you on the shelves as well. So let's see how all this information can help you.

Let's start with the basics: The basic label. This label tells you a number of things. Here are four of them.

1. The name of the food.
2. How much the contents weigh.
3. How many things there are inside.
4. The name and address of the manufacturer, packer, or distributor.

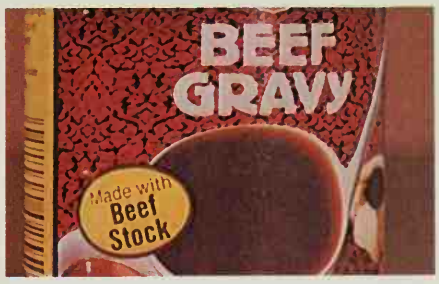
And those things are certainly not too hard to understand, right? So let's go on.

The ingredients on the package are also listed. The largest amount of an ingredient is listed first; the second largest second; and so on. If colorings or additives are used, these are listed, too. Usually, there is a brief explanation of what these additives do. For instance, you might find: "Added to maintain texture," or "Added to retard spoilage."

All right. So far so good. But you might be asking yourself: What about those foods that don't list ingredients?

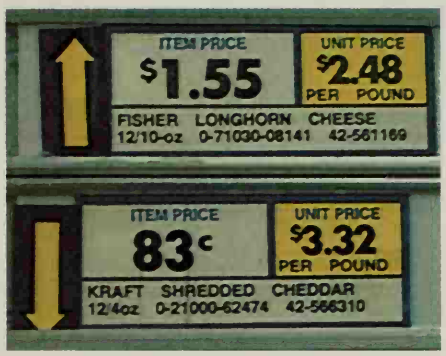
Well, it's true that there are some foods like that—more than 300 of them, in fact. But all of these foods must follow a general recipe. This is called "Standards of Identity." It's set up by the government.

For example, all peanut butter must be at least 90 percent peanuts. Spaghetti and meatballs must be at least 12 percent meat. "Beef with gravy" must be 50 percent beef. (But, listen to this: If the food says: "Gravy with Beef," then it has to have only 35 percent beef.)

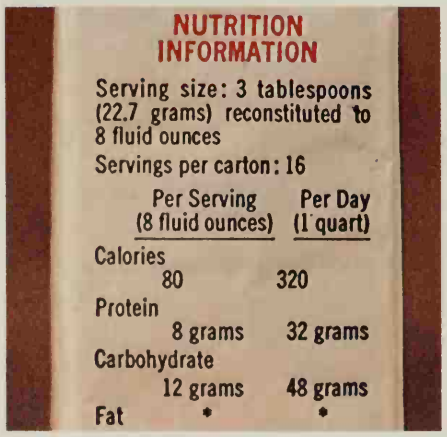


Now, as we said, the shelves themselves also provide some useful information. One bit of information is called "Unit Pricing." It shows not only how much the package costs, but also how much the item costs per unit. (A unit can be in ounces, pounds, or whatever is appropriate.) Many supermarkets put the unit price on the shelves just above or below the items. This is one of the most important labels. Since packages come in different ➜

sizes, you'll sometimes find it hard to compare prices. So the unit price labels do all the difficult math work for you. (As of 1979, 11 states required unit pricing by law.)



Nutrition Labeling is another important item on a label. Any food that makes a claim in advertising (or on the label) that it will do something special for your health must have a nutrition label. Other foods often have these labels just because the manufacturer feels customers will find them useful and interesting.



NUTRITION INFORMATION

Serving size: 3 tablespoons (22.7 grams) reconstituted to 8 fluid ounces

Servings per carton: 16

	Per Serving (8 fluid ounces)	Per Day (1 quart)
Calories	80	320
Protein	8 grams	32 grams
Carbohydrate	12 grams	48 grams
Fat	*	*

Now let's think about the dairy section for a minute. In that section, you're likely to find a fruit flavored yogurt, for instance. And on the container you might find this kind of information: (1) the contents provide one serving; (2) the serving has 250 calories; and (3) it has ¼ (25 percent) of the protein you need in a day, as well as some of the vitamins and minerals. Pretty useful "info," isn't it?

Did you ever notice dates and numbers on the top or bottom of a package in the dairy section? That date might look like this—"Apr 17"—or this—"0417"—or even this—"417." Or maybe it will just say "1979" or "79."

These dates help you to know when to use food while it's still freshest. And sometimes the dates will tell you when not to use the food. Let's take a closer look at three different dates you might find.

Pull Date: If the package is stamped with "Sell by Apr 17," that means that the manufacturer thinks it would be best if the retailer (your store manager) sold the food by that date. But it doesn't mean you can't use the food after that date.

Freshness Date: Packages sometimes say: "Better if used by Apr 17." Or they might say: "Remains fresh at least one week after date stamped." Again, this doesn't mean you can't use the food after that date. But the product might not be at its best. It might not be as fresh.

Expiration Date: But if the package says: "Do not use after Apr 17" or "Exp Apr 17," that means DON'T USE IT AFTER THAT DATE. Except for eggs—they're different. This mark on an egg carton means the same thing as a freshness date.

So now you know just about everything there is to know about labels. And that should help make you a better shopper. Now back to our Announcer.

Announcer: When we left Mr. Supermarket at the end of Act I, he was curled up for a nice little nap. In the meantime, Larry has gone on with his shopping. So let's return to the exciting conclusion of our play: *The Adventures of Mr. Supermarket.* □

Act II: Scene I: Advertising

ACT II

Scene 1: The Supermarket. Larry is about to pick up a box of cereal from the shelf.

Mr. Supermarket *(with his cape flowing out behind him, races down the aisle of cookies, crackers, and cereal):* Hold it! Why are you reaching for that particular box of cereal?

Larry: I don't know. I guess because the picture on the box looks kind of neat. It just caught my eye.

Mr. Supermarket: Of course it looks "neat." Manufacturers spend a lot of money to come up with jazzy packaging that will catch your eye as you speed down the aisles. Why, more than 10 percent of the money you spend on food goes for the package. The package probably also caught your eye because it was on the middle shelf—just at eye level. Many stores put the most popular items at eye level so you can see them right away. And if there's something new we especially want people to try, we also put it where they can see it—and reach for it most easily. But you ought to have a better reason for buying something.

Larry: Well, I know the name. I've seen it advertised on TV.

Mr. Supermarket: Sure. National brand names are advertised. But the advertising is expensive and you pay for the ads in the cost of the product. If the product's good enough, maybe you don't mind. But have you ever looked at store brands?

Larry: Store brands? What are those? ➜

Scene 2: The Frozen Food Section

Mr. Supermarket: Take a look at these labels. Many large supermarket chain groceries sell products almost identical to big national name brands. They can often charge less for them. Sometimes stores even buy the item from the national company — so it's exactly the same — only with the store's label instead. Sometimes store brands aren't any cheaper, though. So you have to check the unit pricing to tell.

Larry: What about that real plain can? It doesn't even have the store's name.

Mr. Supermarket: This is something new that some stores are using. It's called "generic labeling." There are no fancy packages. Just the food. And it's usually cheapest of all. The quality of the food may not be as high, but it is generally as good nutritionally as the national or store brand.

Larry: How can I tell which to buy?

Mr. Supermarket: You'll just have to try them and see which you like best. If you can't taste any difference between this name brand and the store brand, and there is no real nutritional difference, then you should pick whichever costs less. You're here to buy food, not a name, right, Harry?

Larry: Sure. What's in a name, anyway? Right, Mr. Fishmarket?

Mr. Supermarket: Fishmarket? It's Mr. Supermarket.

Larry: Where?

Mr. Supermarket: Right here.

Larry: Well, I don't see your friend Mr. Supermarket. And I haven't got all day. Let's move on to the frozen foods.

Three cans of corn — a store brand, a national brand and a generic label.

Scene 2: *Larry and Mr. Supermarket are now in the frozen food aisle.*

Larry: Sure has taken us a long time to get here.

Mr. Supermarket: That's because we're at the end of the line. Frozen food should always be your last stop. And you should go straight home after shopping so the food doesn't thaw. But if you go out and run other errands and the food does thaw, you shouldn't refreeze it. Some foods could spoil, and others will lose their flavor and texture in the refreezing.

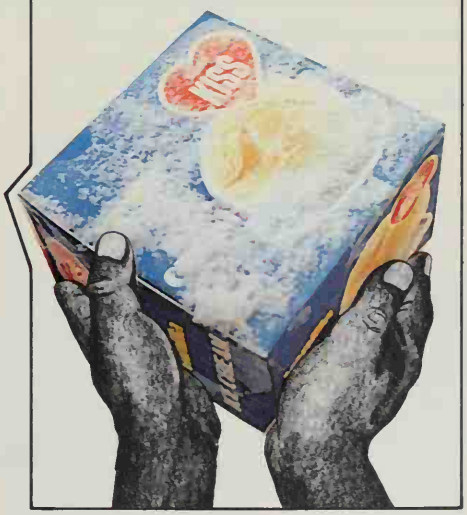
Larry: This is the best place to stand on a hot day. How cold is it in the frozen food case, Mr. Supermarket?

Mr. Supermarket: We keep the case anywhere from 0 to 10 degrees F.

Larry *(reaching for a package of frozen food):* This one's all frosted up with ice. I guess that means it's good and cold.

Mr. Supermarket: Not really. In fact, you probably shouldn't buy that one. That frost means it may have thawed a little at one point, or somehow moisture escaped from the package. Pick another one and let's go.

A heavily frosted package may have thawed at one point. Pick another one.



Larry: But wait. How do I know if it's cheaper to buy frozen or fresh or canned foods?

Mr. Supermarket: That's a tough question. There's no *one* rule. You have to compare. Sometimes frozen foods are cheaper. Frozen orange juice, for instance, is usually cheaper than fresh-squeezed. And when a vegetable isn't in season, often the frozen version is cheaper. Sometimes it's the only kind available.

Larry: Well what about frozen dinners?

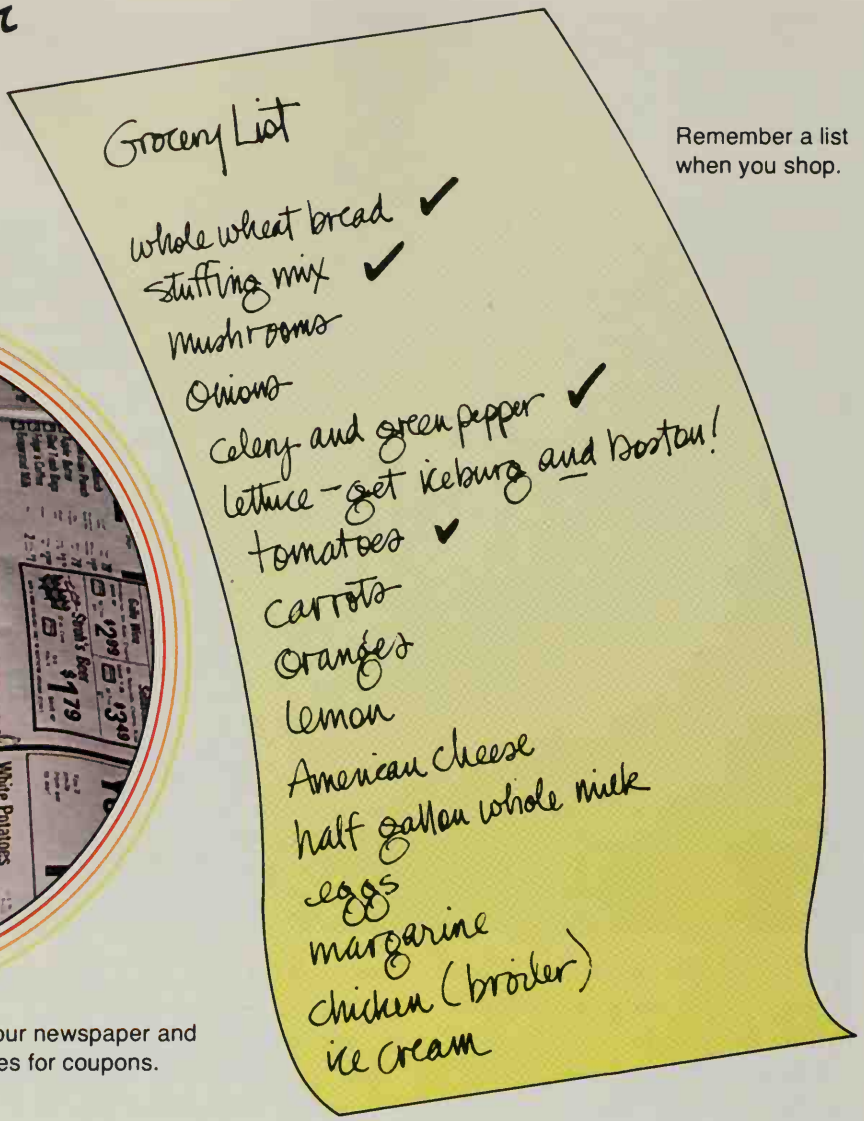
Mr. Supermarket: Frozen dinners are often more expensive than homemade versions of the same dinner. Here's a price comparison a government study made in Washington with 1978-1979 prices:

	Cents per serving
PIZZA	
Frozen	86
Homemade	48
CHICKEN CHOW MEIN	
Frozen	83
Homemade	53
FRIED CHICKEN	
Frozen	80
Homemade	36

Mr. Supermarket: So the thing to remember is to compare. And remember, you pay for convenience in ready-made foods. These are foods that you must heat up in the oven, or just add water to. Sometimes, though, they can be made from scratch almost as easily. And making it from scratch is often cheaper. Now, let's move on to the checkout counter. ➜

Scene 3: The Check Out Counter

Check your newspaper and magazines for coupons.



Remember a list when you shop.

Scene 3: *They're at the check-out counter.*

Mr. Supermarket: Where are your coupons?

Larry: What coupons?

Mr. Supermarket: Do you mean to tell me you came in here without checking your paper for coupons or sales?

Larry: It's not a holiday. I didn't think there'd be a sale.

Mr. Supermarket: Every week's a holiday in the supermarket biz. Every week we put something on sale. At most supermarkets you get the sales and the lowest prices at the end of the week, Thursday through Saturday, and in some places even Sunday. Sometimes we even sell certain items for little or no profit or at a loss. Those items are called "loss leaders."

Larry: Why would you do that?

Mr. Supermarket: Well, people read our advertised special price and they come into the store to buy. Once they're in . . .

Larry *(interrupts with the answer):* Then they do the rest of their shopping there.

Mr. Supermarket: Clever lad. And we hope they'll come back again, too.

Larry: But the cents-off coupons are different. I can use them in any store, right?

Mr. Supermarket: Yes. Those are put out by the manufacturers of the products. They run billions of those coupons in local papers and magazines everywhere. It's their way to encourage people to try one of their new products or to switch brands.

Larry: Do I have to buy the product—or can I just bring in the coupon and get money?

DO YOU MEAN TO TELL ME YOU CAME HERE WITHOUT CHECKING YOUR PAPER FOR COUPONS OR SALES?

Mr. Supermarket: No, you have to buy the item. That's the whole point. Then the supermarket sends the coupon in to the manufacturer and the manufacturer sends the store the money that was discounted. See?

Larry: Yes. But it's hard to concentrate on what you're saying with all this yummy-looking candy around. I think I'll take one of these, and one of...

Mr. Supermarket: H-m-m-m. Were those on your list?

Larry: What list?

Mr. Supermarket: You mean you came in without a grocery list! That can be risky. You could wind up buying on impulse lots more than you need.

Larry: I can't help it. These things look so good. And after all this shopping, I'm HUNGRY.

Mr. Supermarket: Shopping when you're hungry is even riskier than shopping without a list. One supermarket study showed that people often spend 15 percent more if they shop when they're hungry.

The scanner, that's the computer's glass eye, sees the UPC Code and searches its memory to find the price.

Larry: What's that beeping noise?

Mr. Supermarket: Oh, that? Just our little computer.

Larry: What does it do?

Mr. Supermarket: Well, many of the modern stores have them. You see those vertical black bars on the sides of those grocery packages?

Larry: Yeah, is that a secret code?

Mr. Supermarket: Sure, but the computer understands it. It's called the Universal Product Code (UPC). The first five digits identify the manufacturer; the second five digits identify the product size and flavor. The computer reads the black bars instead of the numbers. Here! I just happen to have a sample of a UPC.

The Universal Product Code. Look for it on what you buy.

The cashier pulls the UPC mark over that glass. It's the computer's glass eye. We call it the scanner. And when the computer's laser beam sees the code, it searches its memory to find the price. If it understands, it beeps. Then it prints up the item and the price on the receipt tape.

Check each item on your receipt tape.

Larry: It does all that in just the time it takes to flash the code across that screen?

Mr. Supermarket: Yep, as fast as the blinking of an eye—the computer's glass eye. And now we're done.

Larry: Thanks for the tour, Mr. Supermarket.

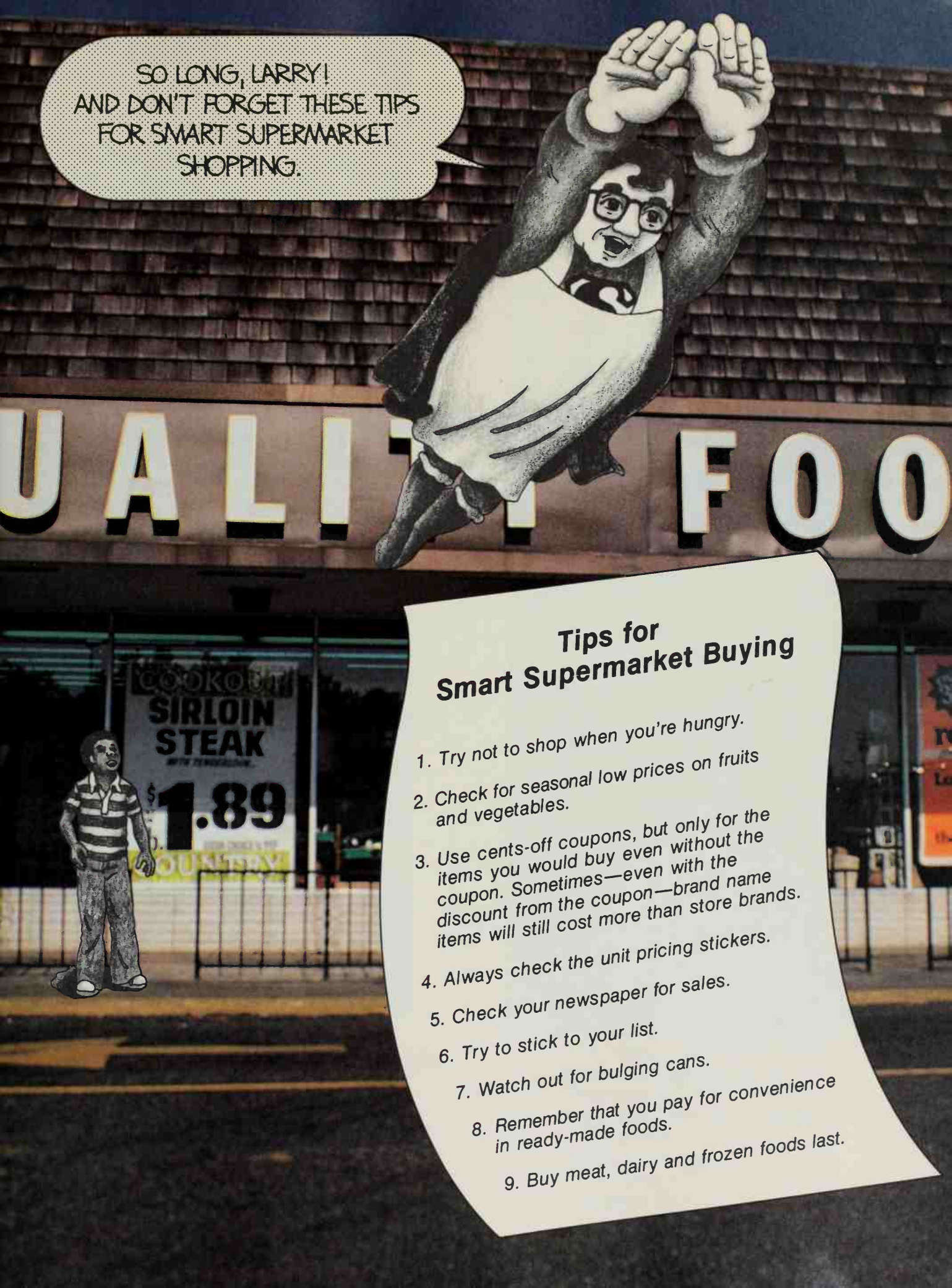
Mr. Supermarket: My pleasure, Harry.

Larry: IT'S LARRY!

Mr. Supermarket *(looking around):* Where IS this friend you keep talking about, Gary?

Larry: He's not a friend...

Mr. Supermarket: Well, then I can't see why you keep bringing him up. Kids. *(And with that Mr. Supermarket zooms off calling...* Good-bye, it's been nice shopping with you! □



Tips for Smart Supermarket Buying

1. Try not to shop when you're hungry.
2. Check for seasonal low prices on fruits and vegetables.
3. Use cents-off coupons, but only for the items you would buy even without the coupon. Sometimes—even with the discount from the coupon—brand name items will still cost more than store brands.
4. Always check the unit pricing stickers.
5. Check your newspaper for sales.
6. Try to stick to your list.
7. Watch out for bulging cans.
8. Remember that you pay for convenience in ready-made foods.
9. Buy meat, dairy and frozen foods last.

Other Places to Get Food Besides Supermarkets

There are other places to get food besides supermarkets. How often do you get food from these places?

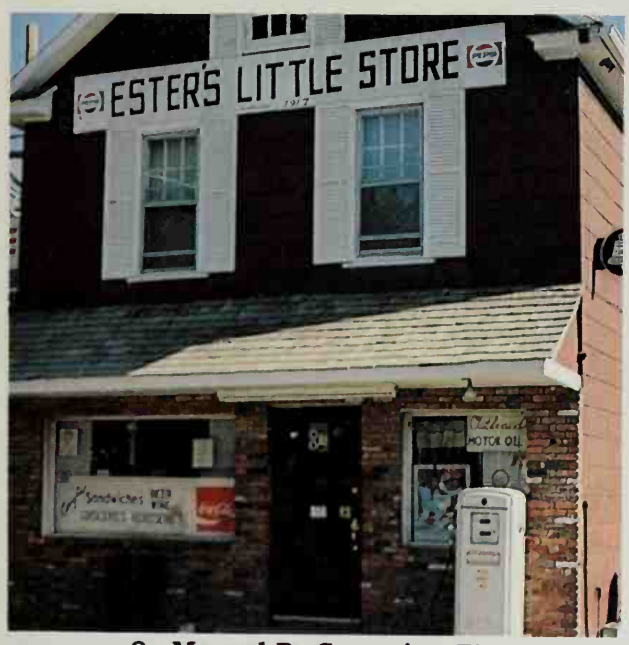
1. School lunch: Most kids go out to eat for lunch every day — at school. Those meals are very nutritious. Kids in lots of parts of the country have decided they want a say in what food the school serves and the schools have been listening.

4. Roadside Stands: These are like farmers' markets, except usually one farmer is selling his things at a small stand. These stands make a nice stopping point on a long trip. When you buy close to where the farmer lives, you don't have to pay for transportation and other marketing costs. But of course, just like going to the store, there are your transportation costs.

5. Cooperatives: Small groups of people can get together and buy bulk quantities of certain foods. Again, they are doing the job the supermarket does for you. But they can often save themselves some money doing the buying and dividing up of the food themselves.

2. Restaurants: Nearly 35 cents of every dollar spent on food goes to restaurants and fast food chains. Americans are spending more time and money eating out.

3. Farmers' Markets: Some towns have places where local farmers can bring their crops to sell — directly to the consumer. This not only means you can sometimes get fresher fruits and vegetables, but those fruits and vegetables will often be cheaper, too.



6. Ma and Pa Groceries: These small neighborhood stores were the original kind of grocery store. It used to be that many city blocks would have their own little store. These small stores do not do as much business as supermarkets do. So often they have to charge higher prices. But they are often closer to where you live.

7. Chain convenience stores: Run out of milk and it's 10 p.m.? Stores all closed? Probably not these little convenience stores. They often stay open all day and night. That's convenient. But you have to pay extra for this convenience. □

CRAFT CORNER

How can you save money when holidays come around? Make your own gifts. Here are some gifts you may even want to present to yourself. They're pomander (pō-man-dar) balls. They can be used as table decorations, and as ornaments. They can also be used to make drawers and closets smell sweet.

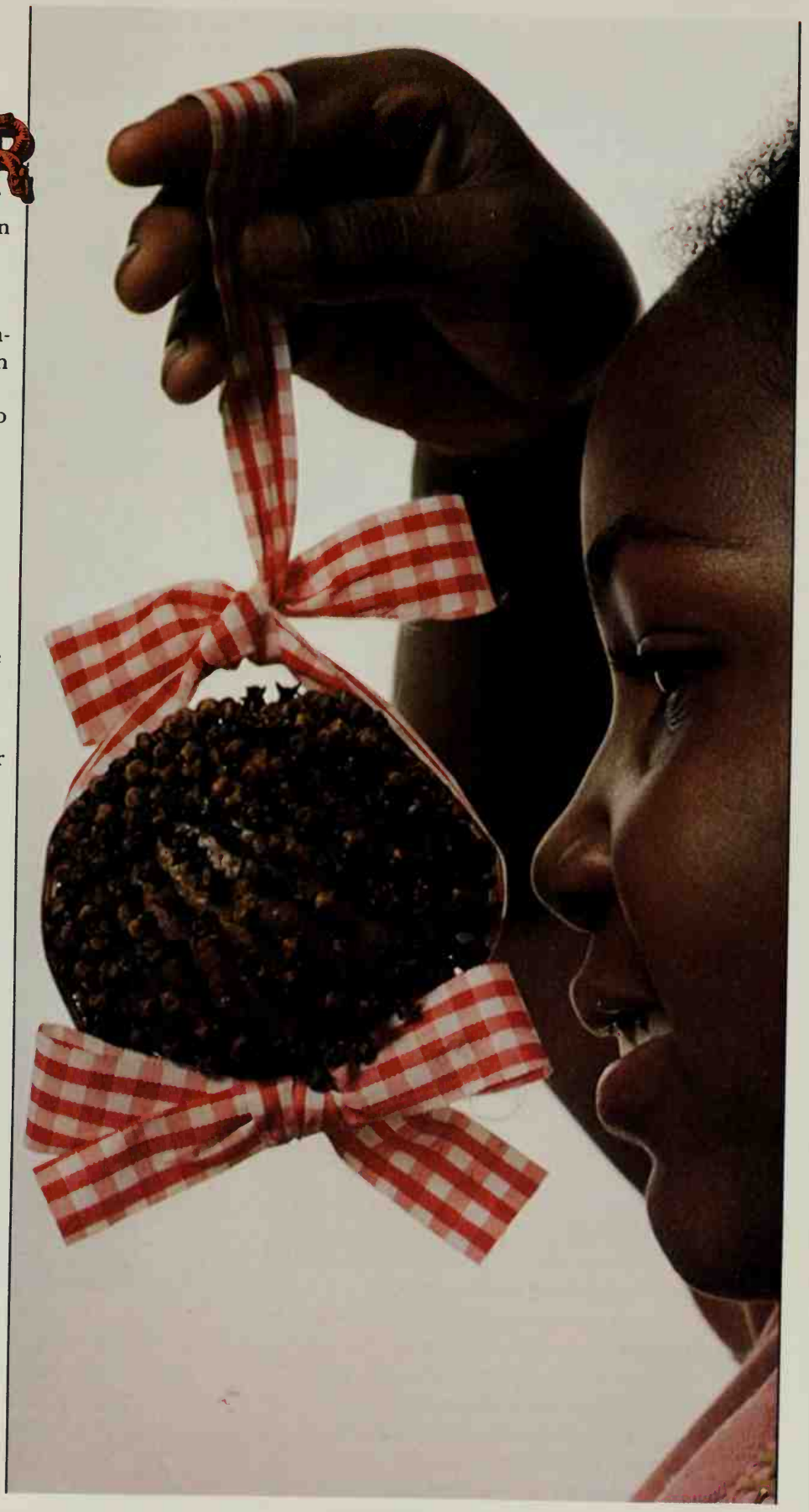
SWEET SMELLS

What You Need:

- Orange, lime, lemon, or apple
- Ribbon or yarn
- Whole cloves
- Light cloth or a piece of net for apples

What You Do:

1. Push the cloves directly into the fruit. Make sure the cloves cover every bit of the fruit.
2. Tie a ribbon or yarn around the fruit. Make a bow at each end.
3. Hang the fruit in a closet or set it in a drawer.
4. For apples: Sprinkle them with cinnamon after putting in the cloves. Tie each apple in a piece of net. Then wrap the entire thing in a piece of light cloth and put it in a drawer for a week. Remove the outside cloth. Shake the apple to remove any extra cinnamon. Tie a ribbon around the net so you can hang it up.



Quick Quiz You Can't Fail

Which is the better bargain?

A. 1 dozen eggs for 98 cents

B. 1/2 dozen eggs for 49 cents.

C. They both cost the same.

D. One chicken.

JOKING AROUND

Mel: How many onions can you put into an empty sack?

Shel: One. After that the sack isn't empty anymore.

Del: If you think beef is high now, what about the time the cow jumped over the moon?

RECIPE

A Cool Cooler

Be a good host — and a good consumer. Treat your friends to a delicious and cooling drink that won't cost a fortune to make. It's a pineapple cooler.

What You Need:

- 46-ounce can unsweetened pineapple juice
- 2 tablespoons lemon juice
- 6-ounce can frozen orange juice concentrate
- 10-ounce bottle chilled club soda
- Mint sprigs (extra)

What You Do:

1. Mix juices and frozen orange juice concentrate. Chill.
2. Add chilled club soda right before serving.
3. Serve over ice in tall glass. Decorate with a sprig of mint.

DID YOU KNOW?

The food Americans order most often when eating out in a restaurant is steak.

An average American eats about 3,000 calories a day but at the Boston Celtics training camp some members eat as much as 8,000 to 10,000 calories a day.

For every $10 we spend in the grocery store, a little more than $1 goes for milk and eggs.

Name the Food!

Here's something with a twist. Can you name it? Answer: Pretzels

A FOOD FIRST

The first pizzeria in the United States was licensed in New York City in 1905.
Wonder who ate the first slice of pizza?

WILL SPINACH MAKE ME STRONGER?

All About You – And the Food You Eat

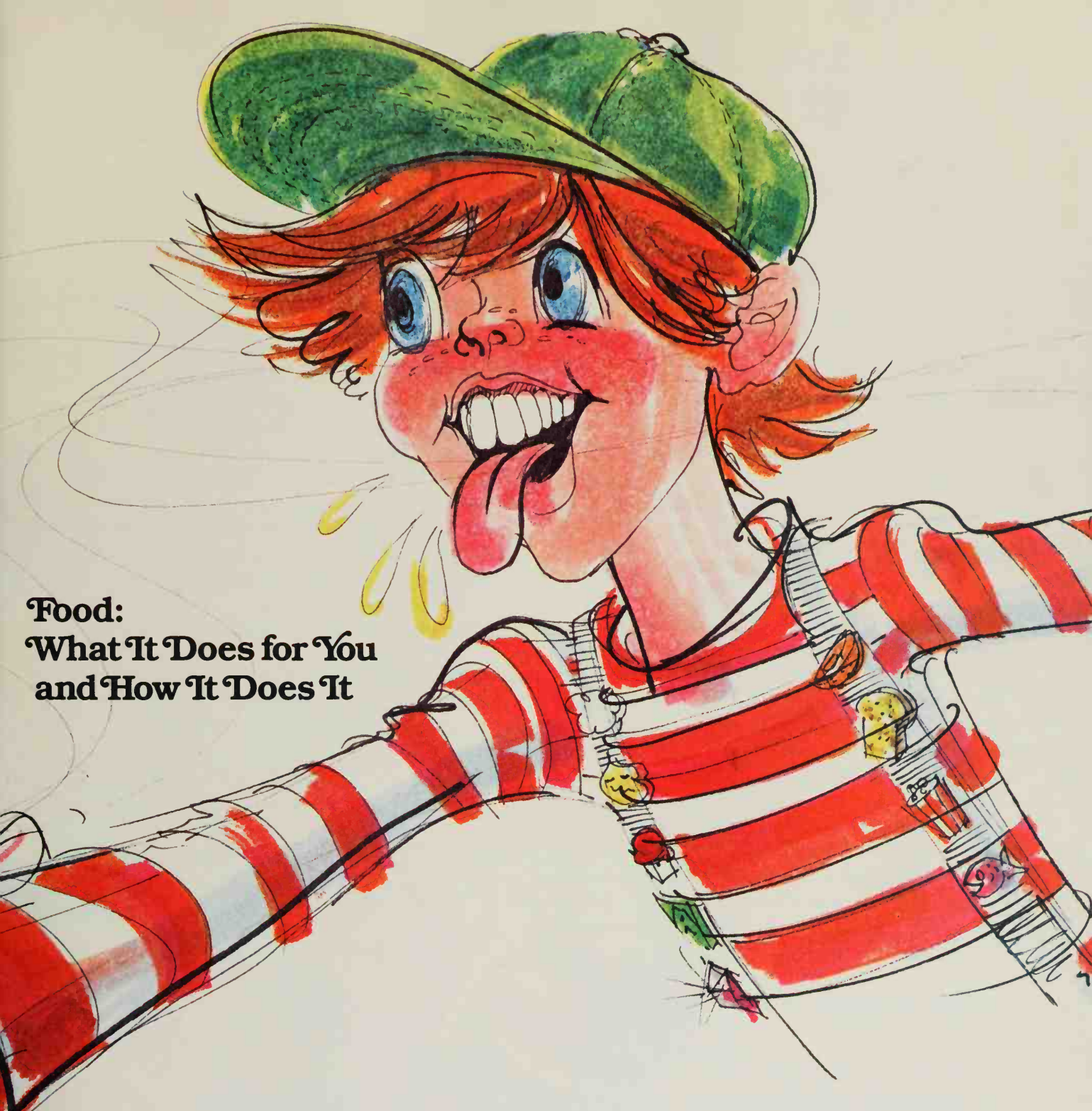
Why do you eat?

Like most people, you'll probably say you eat because you're hungry, or because it's "time" to eat, or because food looks, smells, and tastes pretty good.

Yet, also like most people, you probably don't give too much thought to the food you eat each day. For instance, have you ever thought about what that food does for you, or how it does it?

Here's your chance to be the one who knows the most about food in your crowd. You'll find lots of interesting information about food and you in the next few pages.

So settle back to read All About You — and the Food You Eat. □



Food: What It Does for You and How It Does It

If you've ever heard adults talk about food — and who hasn't? — you've probably heard them say things like:

- "It's low in carbohydrates."
- "I'm counting calories."
- "You should eat a balanced diet."

But what do all those things really mean?

Before we can answer that question, we first have to talk about what food does for your body, and how it does it.

Food gives you the energy you need to walk, run, study, play ball, watch TV, dance, sleep, even wink your eye. Food also helps you to grow, and to stay healthy. Without food, even the strongest person in the world could live only 7 or 8 weeks.

But how does food do its job? To understand this, you need to understand things like digestion, cells, and nutrients. All of these things work together to help produce the energy you need to keep your body running. So, let's first look at how digestion works.

You and Digestion

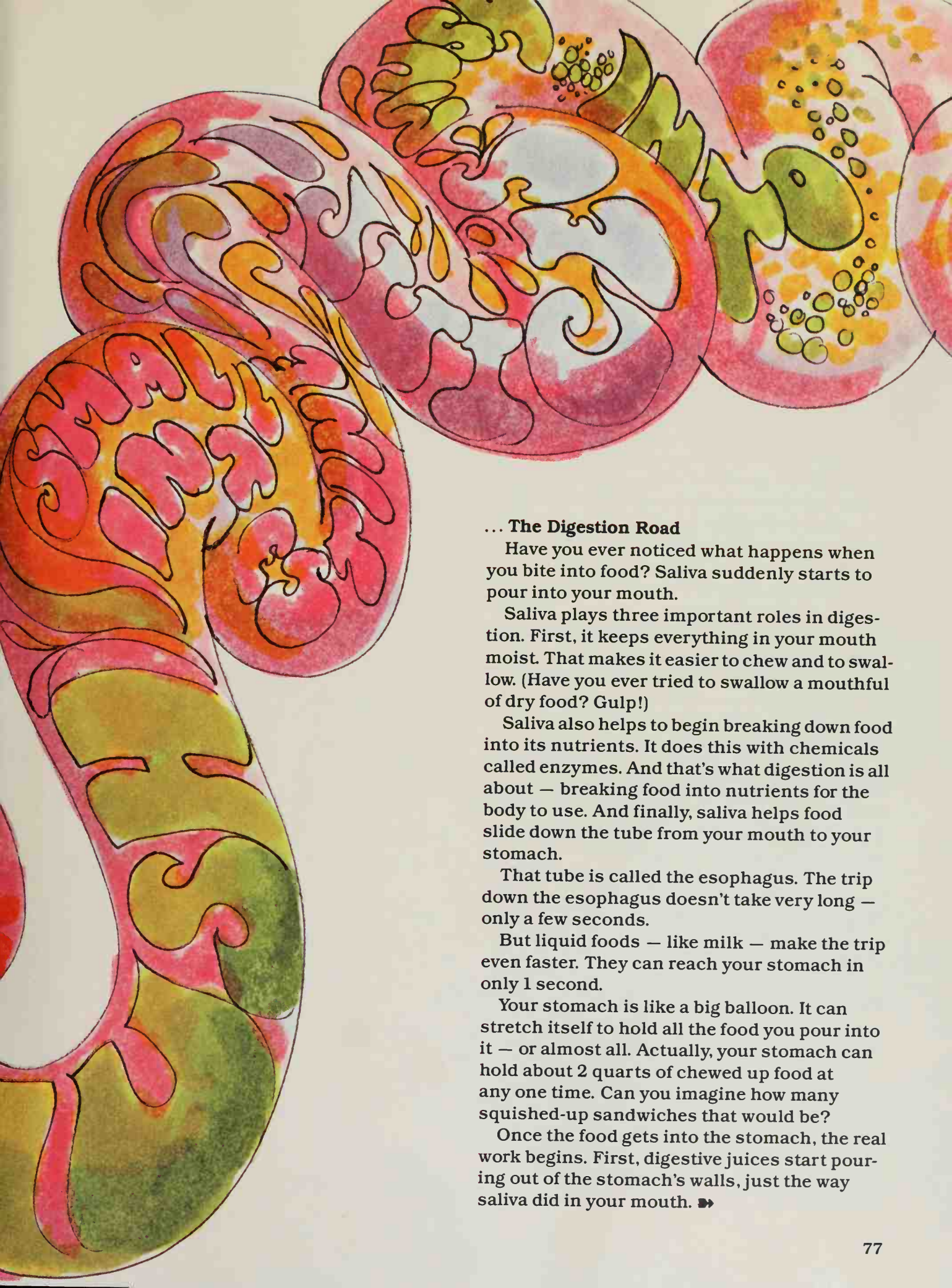
Bet you thought digestion started with your mouth, didn't you? But it can actually start even before you take that first bite.

Just think about the smell of freshly baked bread. What happens? Chances are your mouth will start to water. That's the first sign that your body is getting ready to digest food.

Digesting that food may take your body as little as 3 hours, or as long as 11 hours. That depends on what and how much you eat.

But no matter whether it's a banana or a glass of milk, all food travels along the same path. And that path is 25 feet long — even if you're only 5 feet tall.

How can that be? Let's find out. We'll follow food from the moment it enters your mouth to the time it leaves your body. And we'll see exactly what happens at each step along the way. Ready? Fasten your seat belts. We're off on a trip down . . .



... The Digestion Road

Have you ever noticed what happens when you bite into food? Saliva suddenly starts to pour into your mouth.

Saliva plays three important roles in digestion. First, it keeps everything in your mouth moist. That makes it easier to chew and to swallow. (Have you ever tried to swallow a mouthful of dry food? Gulp!)

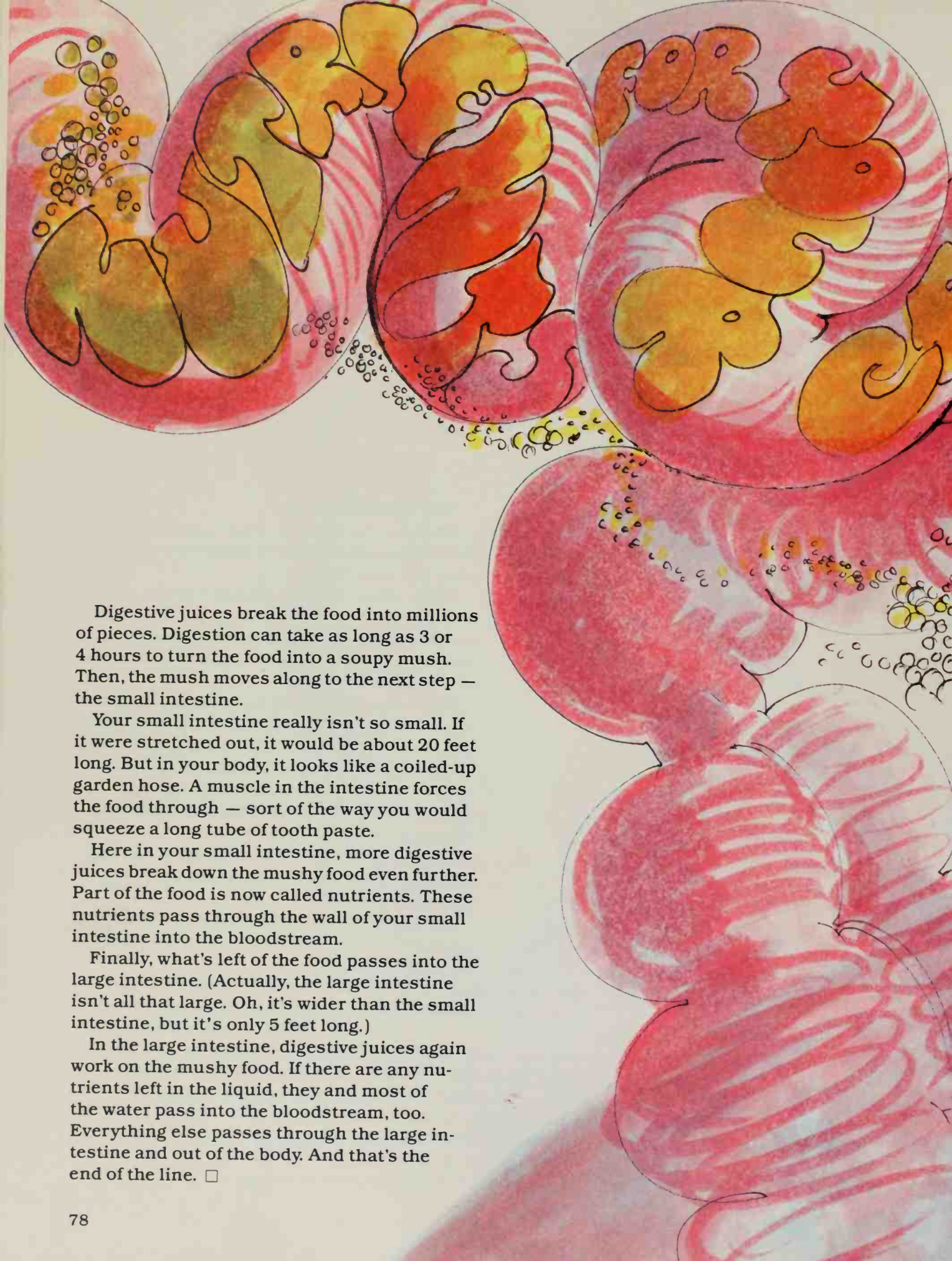
Saliva also helps to begin breaking down food into its nutrients. It does this with chemicals called enzymes. And that's what digestion is all about — breaking food into nutrients for the body to use. And finally, saliva helps food slide down the tube from your mouth to your stomach.

That tube is called the esophagus. The trip down the esophagus doesn't take very long — only a few seconds.

But liquid foods — like milk — make the trip even faster. They can reach your stomach in only 1 second.

Your stomach is like a big balloon. It can stretch itself to hold all the food you pour into it — or almost all. Actually, your stomach can hold about 2 quarts of chewed up food at any one time. Can you imagine how many squished-up sandwiches that would be?

Once the food gets into the stomach, the real work begins. First, digestive juices start pouring out of the stomach's walls, just the way saliva did in your mouth. ➽



Digestive juices break the food into millions of pieces. Digestion can take as long as 3 or 4 hours to turn the food into a soupy mush. Then, the mush moves along to the next step — the small intestine.

Your small intestine really isn't so small. If it were stretched out, it would be about 20 feet long. But in your body, it looks like a coiled-up garden hose. A muscle in the intestine forces the food through — sort of the way you would squeeze a long tube of tooth paste.

Here in your small intestine, more digestive juices break down the mushy food even further. Part of the food is now called nutrients. These nutrients pass through the wall of your small intestine into the bloodstream.

Finally, what's left of the food passes into the large intestine. (Actually, the large intestine isn't all that large. Oh, it's wider than the small intestine, but it's only 5 feet long.)

In the large intestine, digestive juices again work on the mushy food. If there are any nutrients left in the liquid, they and most of the water pass into the bloodstream, too. Everything else passes through the large intestine and out of the body. And that's the end of the line. □

You and Cells

The nutrients are now in the blood. They've passed through the walls of the intestines and have entered the blood vessels. These blood vessels go to all parts of the body. The nutrients are carried farther into a vast network of tiny vessels, called capillaries. The capillaries stretch out in all directions to reach the more than 100 trillion cells in your body. Now the real work begins, feeding your cells from your eyeballs to your toes.

All living things — and that includes plants, animals, and you — are made up of cells. Some things are made up of only one cell. You, however, are made up of over 100 trillion cells.

If you're thinking that all these cells must be pretty small, you're right. In fact, it would take about 40,000 of your red blood cells to fill this letter O.

Yet, each of these cells has its own life pretty much just like yours. It takes in food, grows, reproduces itself, and, like all other living things, it eventually dies.

Different groups of cells make up different parts of your body — like your bones and your skin, and your muscles and your blood. And each group of cells has its own unique job to do.

All of these cells need nutrients to do their work. And where do you think they get the nutrients? That's right — from the food you eat. □

You and Nutrients

There are more than 50 different kinds of nutrients. And all of them are important in helping your body grow, repair cells, and generally stay healthy.

Luckily, we don't have to try to remember the names of all of these nutrients. That's because nutrition experts have put all of them into six basic groups: carbohydrates, proteins, fats, vitamins, minerals, and — believe it or not — water.

So let's take a closer look at the six groups of nutrients. We'll see how all of them work to keep you going.

Carbohydrates For Energy

What kind of food do you think of when you hear the word *carbohydrates*?

If you're like most people, you probably think of corn on the cob, or baked potatoes, or spaghetti, or breads. And you're right.

But what about celery or a peach or table sugar? Did you know these foods are also made of carbohydrates? It's true.

The fact is that there are three different kinds of carbohydrates:

- **Sugars** are called simple carbohydrates. They are found naturally in foods like fruit, milk and some vegetables like beets and peas. Refined sugars from sugar cane and sugar beets are added to foods like candy, soda, cakes and ice cream.
- **Starches**, which are one type of complex carbohydrates, are found in foods like bread, potatoes, rice, and vegetables.
- And **fiber**, which is also a complex carbohydrate, is found in the walls of plant cells, the tough, structural parts of plants, like the stringy part of celery or the bran of wheat and other cereals. And even though humans can't digest fiber, it plays an important role. It helps move the other food through the body, and then helps the body get rid of wastes left over from digestion. Some people also think that fiber helps you feel full without eating too many calories and that it helps you to keep healthy and well.

But of the three kinds of carbohydrates, starches have been the main part of people's diets for as far back as anyone can remember. And that's true even today. In Asia, for example, rice is the main part of every meal.

Carbohydrates are your main source of energy. Here's how that works.

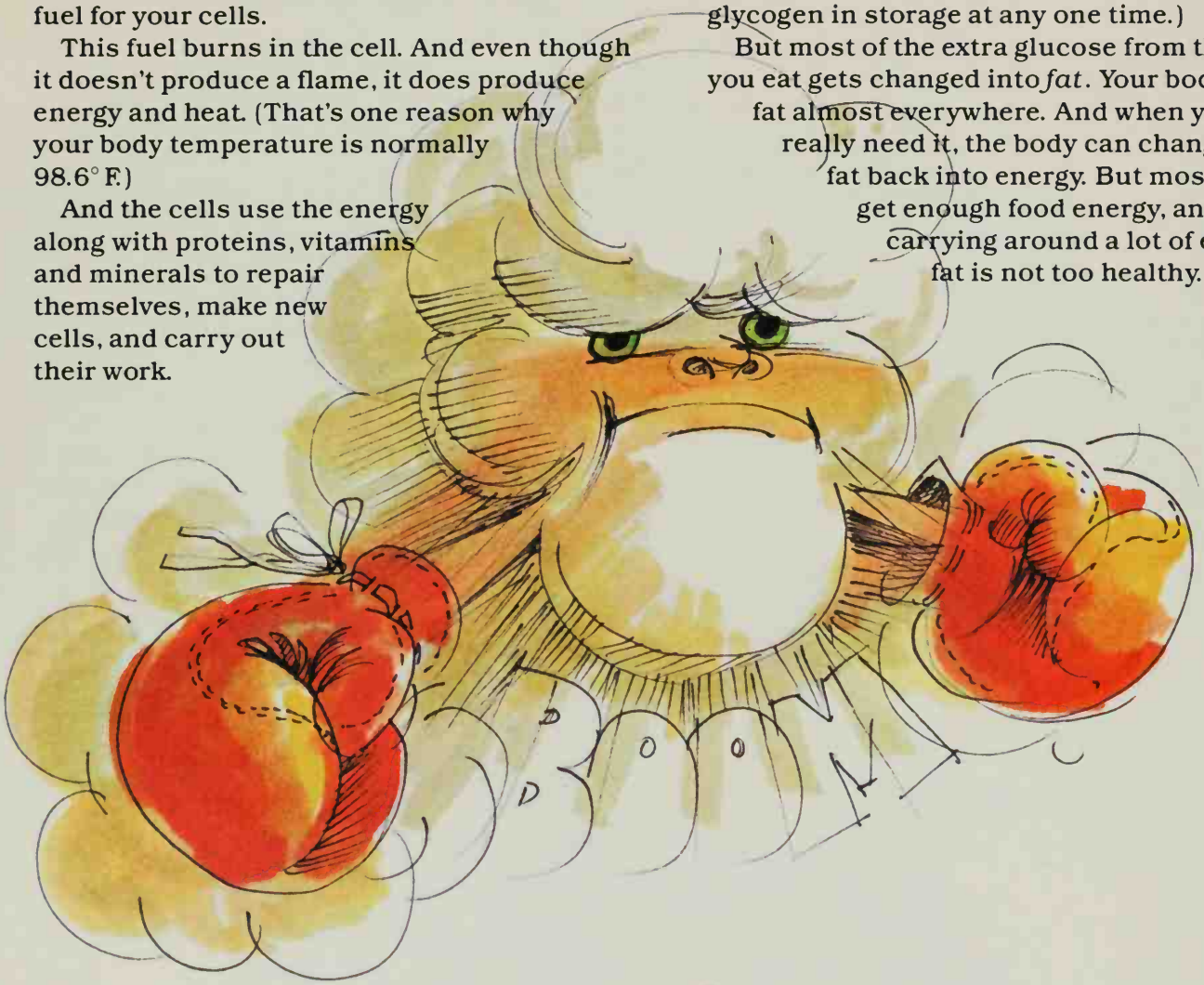
As carbohydrates enter your body, your body changes the starches and sugar to *glucose*. Glucose is like gasoline for a car. It provides fuel for your cells.

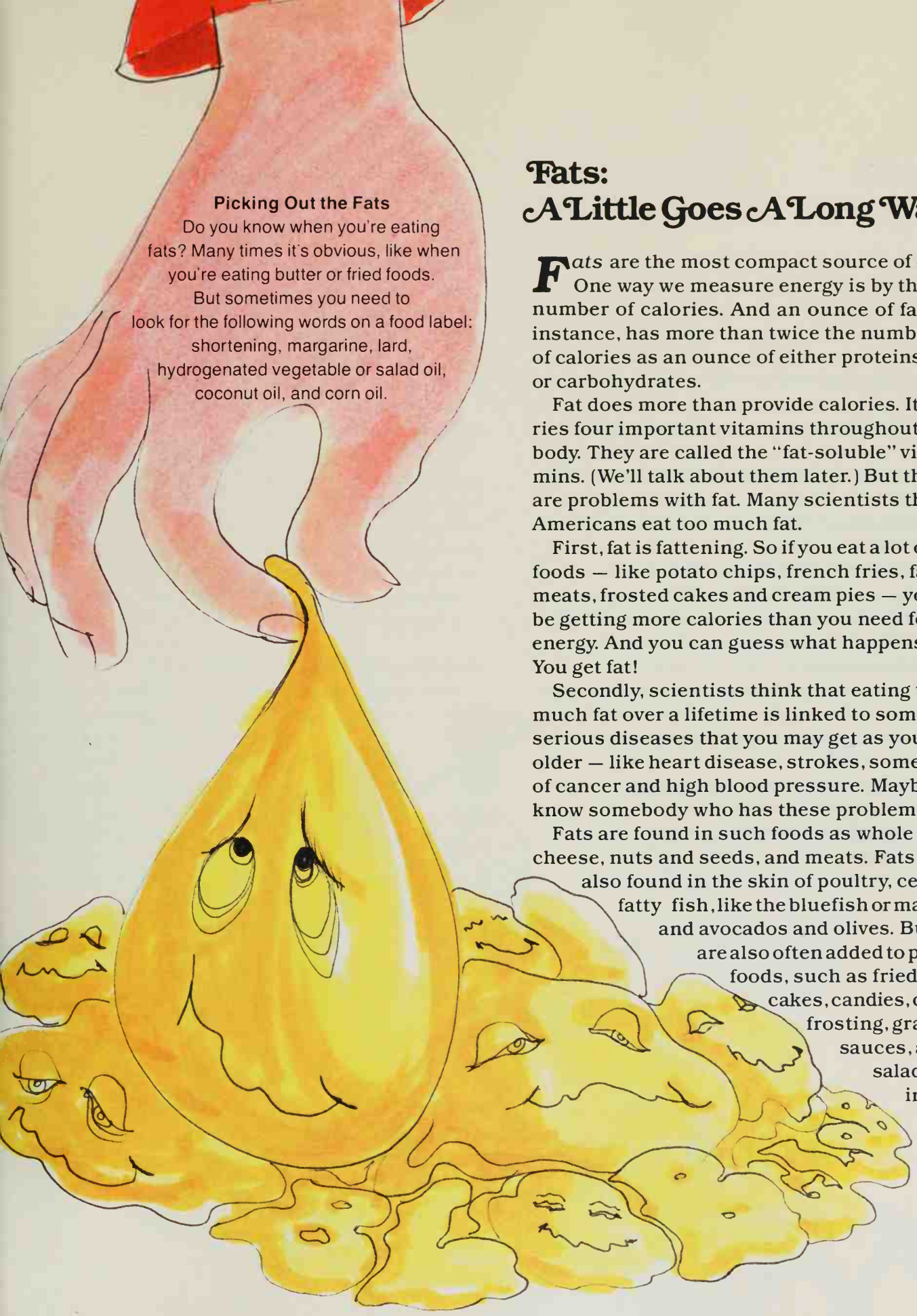
This fuel burns in the cell. And even though it doesn't produce a flame, it does produce energy and heat. (That's one reason why your body temperature is normally 98.6° F.)

And the cells use the energy along with proteins, vitamins and minerals to repair themselves, make new cells, and carry out their work.

Whenever you eat more carbohydrates than your body needs, two things happen. A little of that extra glucose gets changed into another substance. This is called *glycogen*. Your body stores the glycogen for when you need extra energy — like when you decide to race your brother to the corner grocery store. Your body then changes the glycogen back into glucose so that it can send it to the cells to use for energy. (You only have about one pound of glycogen in storage at any one time.)

But most of the extra glucose from the food you eat gets changed into *fat*. Your body stores fat almost everywhere. And when you really need it, the body can change that fat back into energy. But most of us get enough food energy, and carrying around a lot of extra fat is not too healthy.





Picking Out the Fats

Do you know when you're eating fats? Many times it's obvious, like when you're eating butter or fried foods. But sometimes you need to look for the following words on a food label: shortening, margarine, lard, hydrogenated vegetable or salad oil, coconut oil, and corn oil.

Fats: A Little Goes A Long Way

Fats are the most compact source of energy. One way we measure energy is by the number of calories. And an ounce of fat, for instance, has more than twice the number of calories as an ounce of either proteins or carbohydrates.

Fat does more than provide calories. It carries four important vitamins throughout your body. They are called the "fat-soluble" vitamins. (We'll talk about them later.) But there are problems with fat. Many scientists think Americans eat too much fat.

First, fat is fattening. So if you eat a lot of fatty foods — like potato chips, french fries, fatty meats, frosted cakes and cream pies — you may be getting more calories than you need for energy. And you can guess what happens then! You get fat!

Secondly, scientists think that eating too much fat over a lifetime is linked to some very serious diseases that you may get as you grow older — like heart disease, strokes, some kinds of cancer and high blood pressure. Maybe you know somebody who has these problems.

Fats are found in such foods as whole milk, cheese, nuts and seeds, and meats. Fats are also found in the skin of poultry, certain fatty fish, like the bluefish or mackerel, and avocados and olives. But fats are also often added to prepared foods, such as fried foods, cakes, candies, cookies, frosting, gravies, sauces, and salad dressings. ➠

Protein: Your Body's Building Blocks

Nearly everything in your body is made up of *protein*. This includes your hair, bones, muscles, teeth — even your brain.

The protein you eat gets broken down and built back up into all these parts of your body. You need protein to build cells and to repair them. As much as 3 to 5 percent of the protein in your body is replaced each day. Red blood cells live for only about 120 days. Cells in the lining of your small intestine get worn out in a few days and have to be replaced. So you're really not the kid you were even a few weeks ago.

There are certain times of life when you need extra protein — like now when you are growing, or when you're recovering from injury. When you get older, and as your growth slows, you will need less protein.

What foods have protein? Most people think first of meat, fish and chicken. But milk, nuts, cheese, peanut butter, eggs, beans, and grains also have protein.

But you don't have to worry about getting enough protein. Most of us in this country get much more than we need.

Completing the Protein Picture

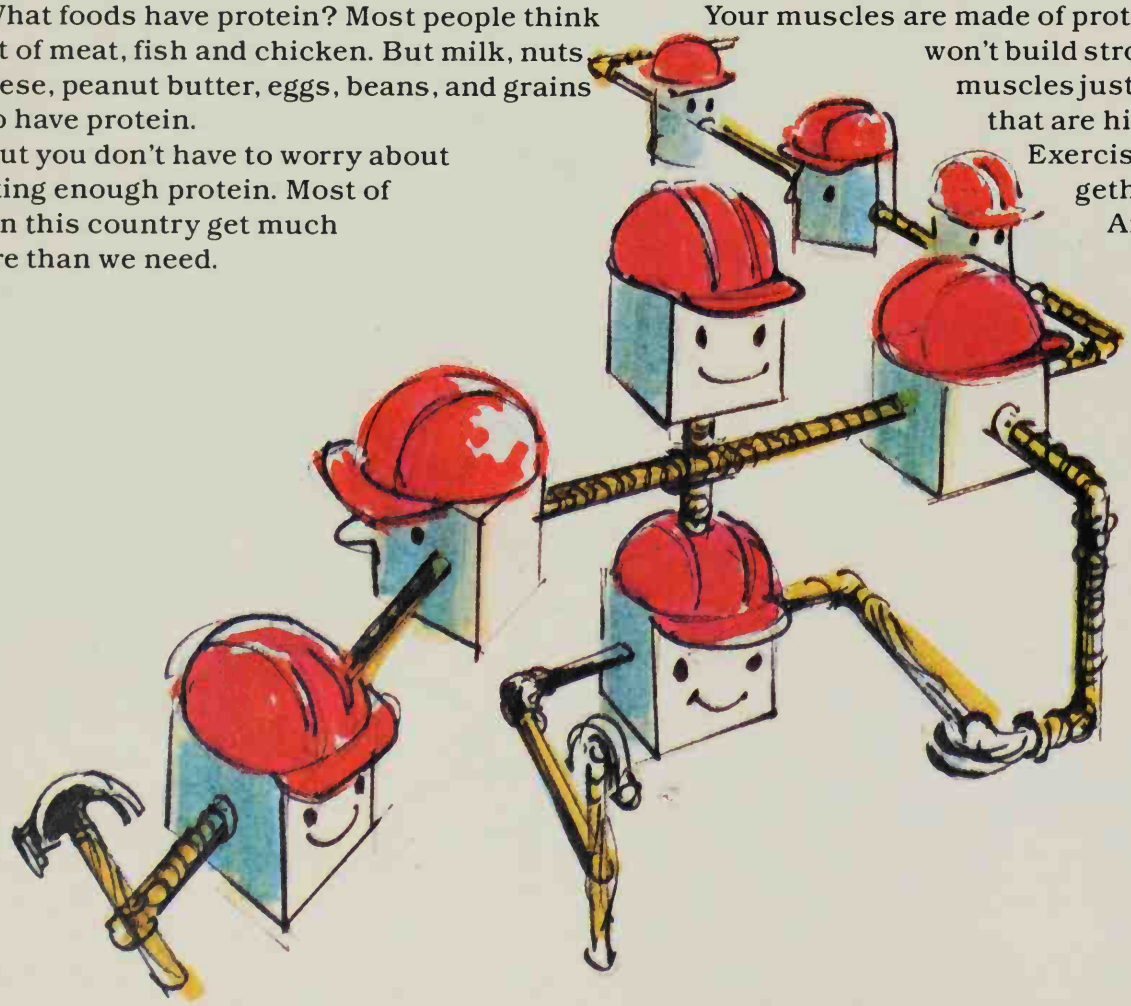
Proteins are not all alike. They vary in the number of building blocks they have for your cells to use. Therefore, you should eat a variety of protein foods in order to keep your cells growing and working right.

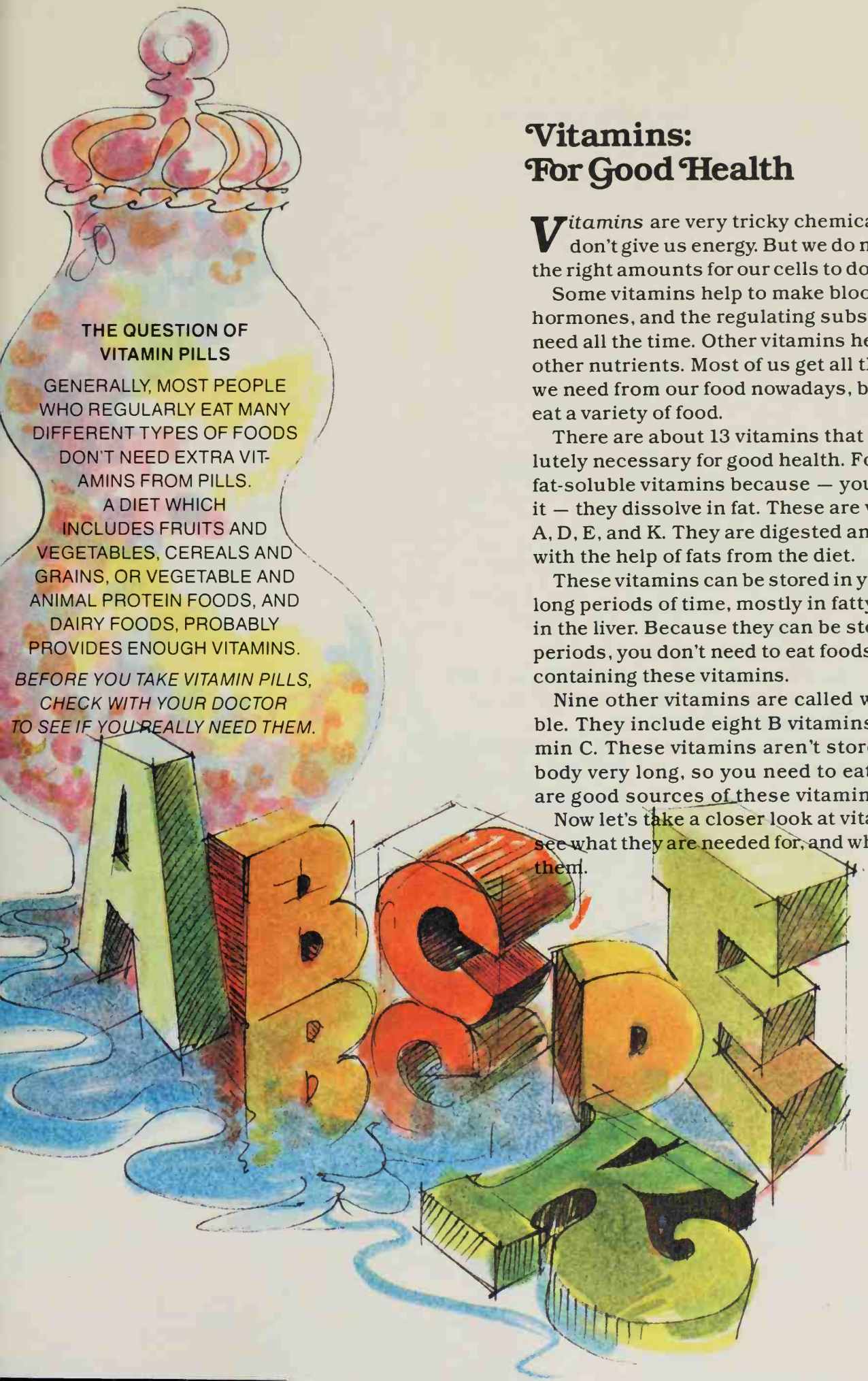
Most people in the world get their proteins from two or more sources.

Mexican people, for example, eat red beans and corn meal tortillas; Chinese people soybean cakes and rice; Arabic people eat chick peas and cracked wheat. You eat peanut butter sandwiches, for example, or cereal and milk, or macaroni and cheese. These foods not only taste good together, they work together for you in your body.

Building the Next Mr. America

Your muscles are made of protein. But you won't build stronger or bigger muscles just by eating foods that are high in protein. Exercise and food together build muscles. And if you eat a lot of extra protein without exercising, that protein will be turned into fat. And who needs that?





Vitamins: For Good Health

Vitamins are very tricky chemicals. They don't give us energy. But we do need them in the right amounts for our cells to do their work.

Some vitamins help to make blood cells, hormones, and the regulating substances you need all the time. Other vitamins help you use other nutrients. Most of us get all the vitamins we need from our food nowadays, because we eat a variety of food.

There are about 13 vitamins that are absolutely necessary for good health. Four are called fat-soluble vitamins because — you guessed it — they dissolve in fat. These are vitamins A, D, E, and K. They are digested and absorbed with the help of fats from the diet.

These vitamins can be stored in your body for long periods of time, mostly in fatty tissue and in the liver. Because they can be stored for long periods, you don't need to eat foods every day containing these vitamins.

Nine other vitamins are called water-soluble. They include eight B vitamins, and vitamin C. These vitamins aren't stored in your body very long, so you need to eat foods that are good sources of these vitamins every day.

Now let's take a closer look at vitamins. We'll see what they are needed for, and where you get them.

Vitamin A

A

Needed for good vision, healthy skin, strong bones, and wound healing.

Found in yellow, orange, and green vegetables; yellow fruits; and in the fat of animal products like fish, milk, eggs, and liver.

B Vitamins

B

Needed for using protein, fat, carbohydrates; for keeping eyes, skin, and mouth healthy; for development work of the brain; and for the nervous system.

Found in many foods such as whole grain and enriched cereals and breads, meats and beans.

Vitamin C

C

Needed for wound healing; for development of blood vessels, bones, teeth, and other tissues; and for minerals to be used by the body.

Found in food like citrus fruits, melons, berries, leafy green vegetables, broccoli, cabbage, and spinach.

Vitamin D

D

Needed for using calcium and phosphorus to build strong bones and teeth. It's a vitamin your skin produces when getting sunshine.

Found in fatty fish, liver, eggs, butter; added to most milk.

Vitamin E

E

Helps preserve the cell tissues.

It is found in a wide variety of foods, and most people get enough.

Vegetable oils and whole grain cereals are especially rich sources.

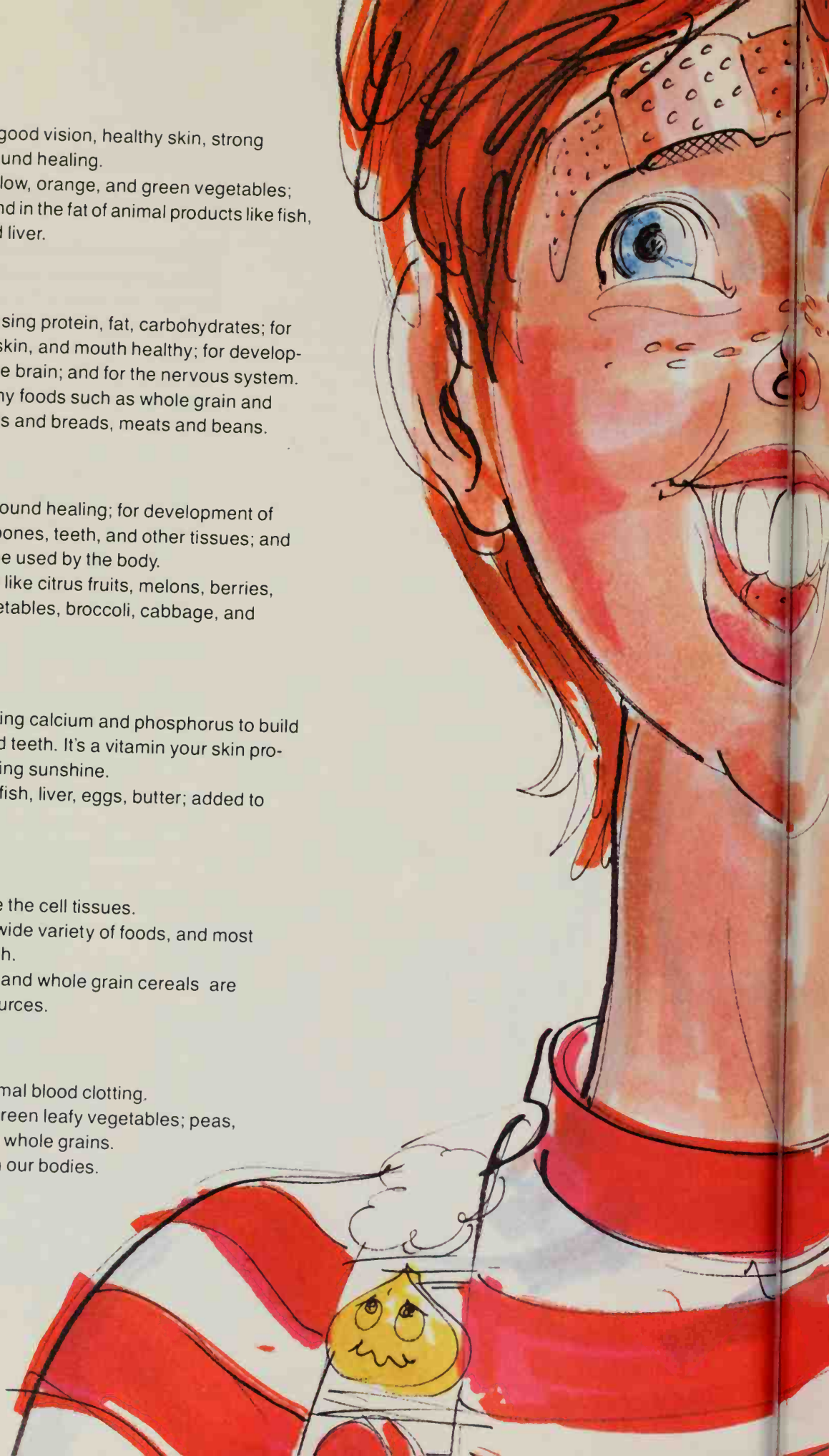
Vitamin K

K

Needed for normal blood clotting.

Found in dark green leafy vegetables; peas, cauliflower, and in whole grains.

It's also made in our bodies.



Minerals: For Teeth, Bones and Health

Minerals are essential to your health, even though you need only small amounts of each.

The 20 known minerals can be divided into four groups:

1. Minerals which are part of bones: calcium, magnesium, phosphorus and fluorine.
2. Minerals that regulate body fluids: sodium, potassium and chlorine.
3. Minerals that are needed to make special materials the cells need to do their work: iron and iodine.
4. Trace elements, or minerals, needed in tiny amounts — traces. They trigger chemical reactions in the body that are essential for good health. ➽

1. Bone Minerals

Bone mineral: calcium, magnesium, phosphorus and fluorine.

Calcium is the mineral we need the most. Calcium makes bones and teeth strong and sturdy and is found in milk products.

Magnesium helps bones and muscles do their work, and helps turn food into energy. It also helps the body use certain vitamins. You get this mineral in nuts, seeds, dark green vegetables, and whole grain products.

Phosporus works with calcium in making bone and teeth. Phosphorus is very plentiful in a typical American diet.

Fluorine is also important for strong bones and teeth. It helps prevent cavities. It is found in seafood and in some plants. But many of us get our supply from the fluorine added to drinking water.

2. Fluid Regulating Minerals

These minerals include sodium, potassium, and chlorine:

More than half your body is water. And these minerals help keep the right amounts of water inside the cells — while keeping the rest out.

3. Material Makers

Minerals that make materials: These minerals include iron, iodine, and sulfur:

Iron carries oxygen in your blood. The best sources of iron are meats (especially liver). But foods from some plants — like beans, green leafy vegetables, and grains — are good sources of iron, especially when eaten along with foods rich in vitamin C. An example is drinking some orange juice with your whole wheat toast in the morning. The vitamin C helps your body absorb iron better.

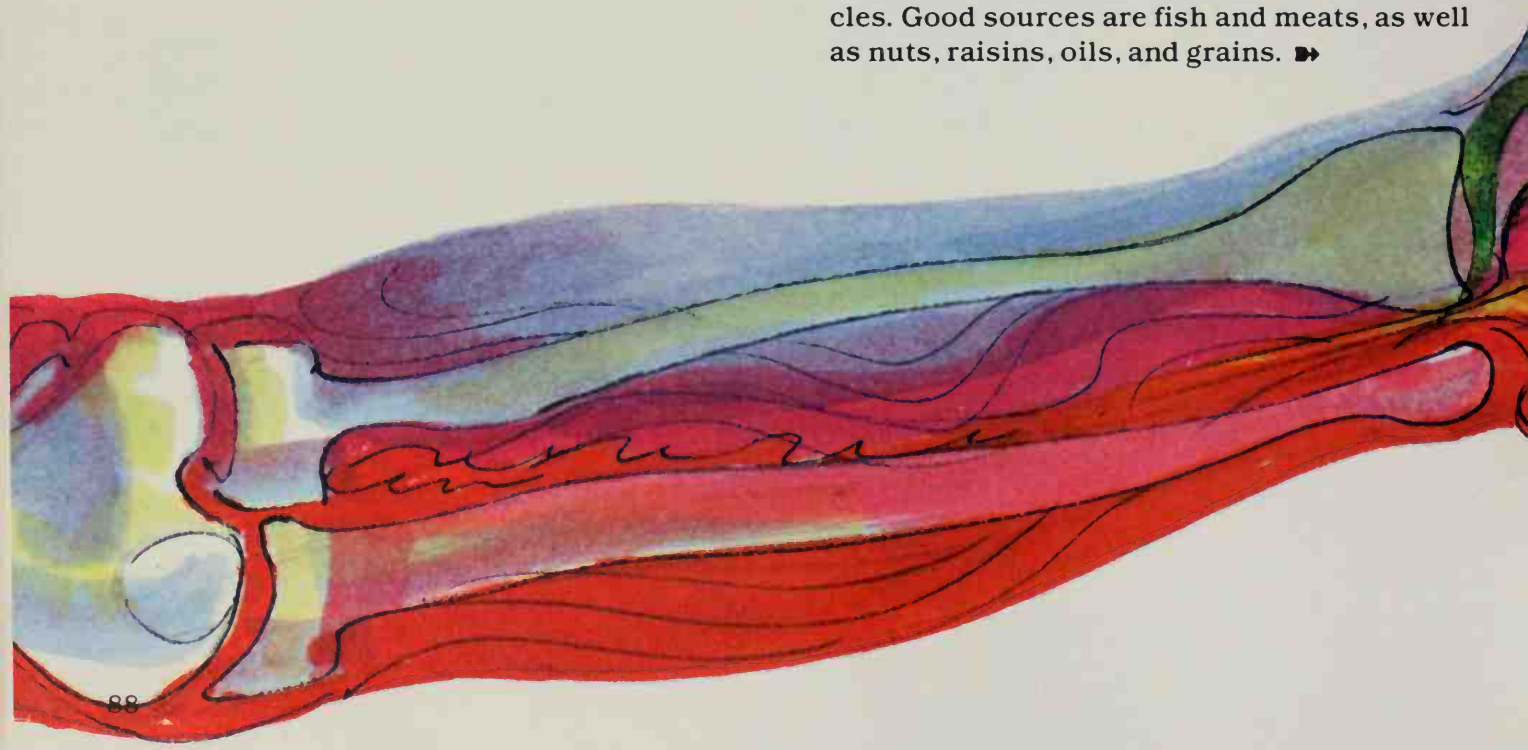
Iodine is needed to make a hormone produced by the thyroid gland, which controls growth. Many years ago people worried about getting a disease called goiter, because they didn't get enough iodine. But now we don't worry because iodine is added to salt.

4. Trace Elements

There are more than 17 trace minerals. Zinc and copper are two examples.

Zinc helps you grow, taste, make proteins, and heal wounds. You get zinc in whole grain bread and cereals, beans, meats, shellfish, eggs, and in many more foods.

Copper, along with iron, is important for healthy red blood cells. It also helps build muscles. Good sources are fish and meats, as well as nuts, raisins, oils, and grains. ➽



Water: For Life

Water? You probably didn't even think it was food at all. But it is. And it's a nutrient, too.

Water is the most important food of all. You can survive for weeks without a single bite of food. But you can only live for a few days without water.

Your body is more than half water. Your blood, for instance, is 90 percent water. Your brain is 75 percent water. And there is water in every one of your cells.

Water carries nutrients to all your cells. It carries wastes away. It keeps your body at just the right temperature.

You lose about 2 1/2 quarts of water a day. Some is lost as urine. Some as perspiration. Some when you breathe. (Ever clean your glasses?)

But water is usually easy to replace. Every time you eat food, you eat water, and water is a by-product of the cells' work.

Can you think of foods that contain a lot of water? You probably guessed tomatoes, oranges, and watermelon. But do you know that bread is more than one-third water? Meat is more than half water.

And, of course, milk and juice are nearly all water — plus natural flavoring and nutrients.

So those are the nutrients — carbohydrates, protein, fats, vitamins, minerals, and water. They come from the food you eat and they make you what you are. □

Diets and You: How to Eat for a Happy, Healthy Body

Muhammad Ali used to eat a thick steak 6 hours before every fight.

O.J. Simpson doesn't eat anything on the day of a big game, and Joe Namath didn't either.

Mary Decker, a world-class half-mile runner by the age of 14, eats a huge plate of spaghetti 3 hours before a race.

Many superstar athletes have their own special diet quirks. Often, they believe that certain foods at certain times will help them win.

But nutrition experts say that athletes don't really need to eat anything special at all. Like everyone else, they just need a good balanced diet, and the right amount of calories.

And you're no different.

But what does a balanced diet mean? And how do you know you're eating one?

Generally, good nutrition and a balanced diet mean eating:

- Some grains, especially whole grain foods
- An assortment of fruits and vegetables
- Some lean meats, poultry, and fish
- Some milk or other dairy foods
- Not too much fats or fatty foods, sugar or heavily sweetened foods, or salted foods.

It means eating only as many calories as you need to keep your weight where it should be. That's what is meant by a balanced diet.

Let's take a minute to see how much you know about good nutrition. Which foods below do you think provide all the nutrients you need in one day?

A. Three servings of spinach.
B. Three glasses of milk, plus two chicken legs.
C. Three slices of bread, plus an orange.
D. None of the above ▸▸

By now, this question should be pretty easy to answer. The answer, of course, is D. *No single food can possibly provide all the nutrients your body needs*. And even a couple of foods — like those listed in B or C — do not provide the balance you need.

If you said that the answer could also be "All the Above" — A, B, and C — you're right, too. And you're probably well on your way to understanding what a balanced diet really means.

Eating for good nutrition is like putting together a jigsaw puzzle. Each basic food has different things you need. And you have to put many different pieces together to get the whole nutrition picture. That doesn't mean you should eat a lot, just a variety.

All of the food we eat can be divided into five groups. By knowing what is in each of the five groups, and by knowing how much of each group to eat, you can make sure you're getting a balanced diet. □

The Five Food Groups

Now let's take a closer look at the five food groups...

You'll see what kinds of food are in each and why it's important to eat those foods.

You'll also see how many servings you should eat each day from the different groups. ➠

VEGETABLE FRUIT Group

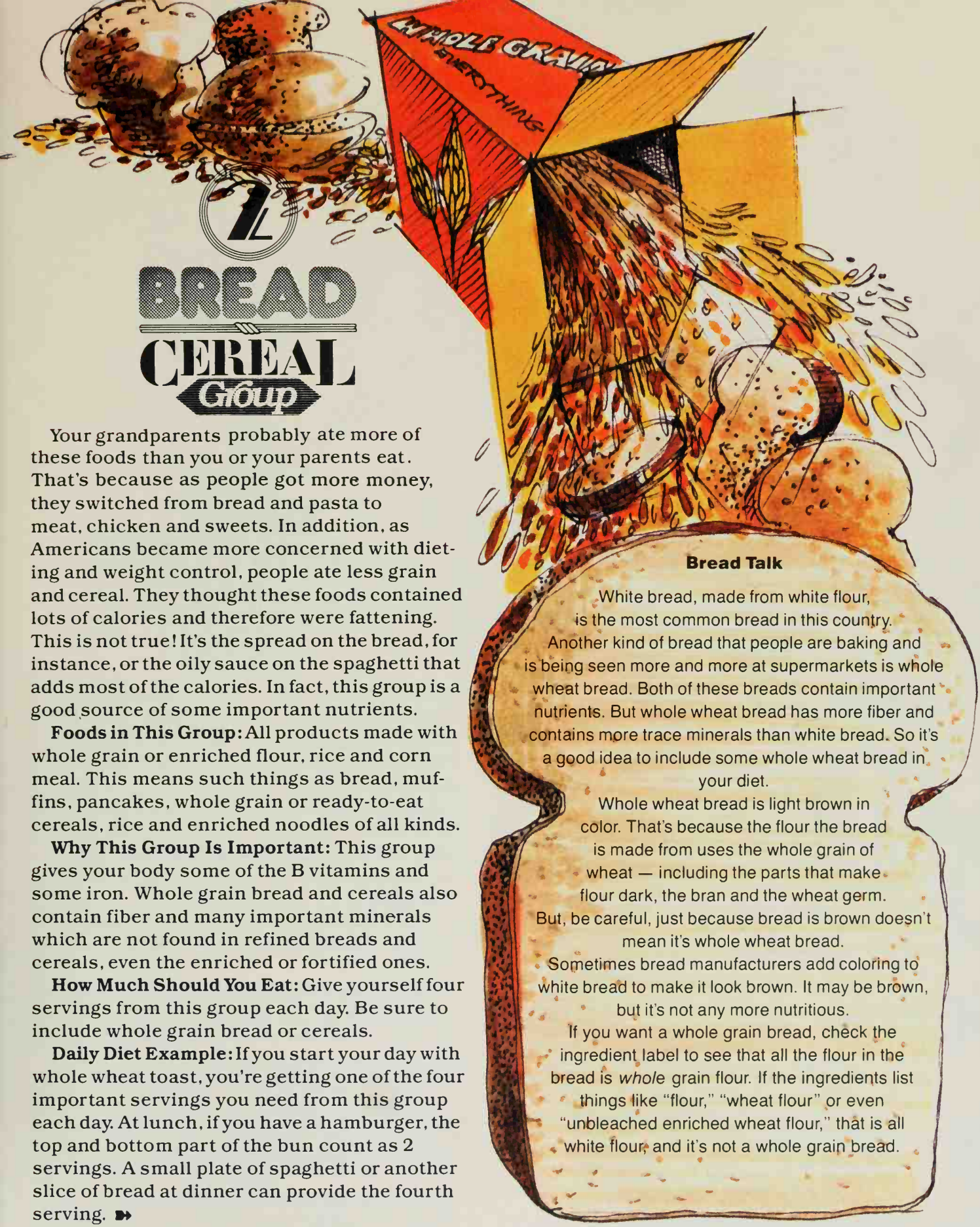
You've probably heard the old saying, "An apple a day keeps the doctor away." Well, that isn't really true, but fruits and vegetables are important foods.

Foods in This Group: The fruits include oranges, lemons, watermelons, bananas, and fresh strawberries — to name just a few. The vegetables include broccoli, spinach, carrots, green beans, tomatoes, and potatoes.

Why This Group is Important: The fruits and vegetables are important because they give you vitamins A and C, carbohydrates and fiber, among other things. Dark green and deep yellow vegetables are good sources of vitamin A. Grapefruit, oranges, berries, and melons are good sources of vitamin C. So are tomatoes and broccoli. But different foods in this group provide different amounts of these vitamins and other nutrients. So it's important to vary the ones you choose.

How Much You Should Eat: Four servings of food from this group are recommended each day. An average size orange, or a small glass of orange juice, for example, counts as one serving. So would a medium-size potato, a portion of green beans, or a small bowl of cole slaw.

Daily Diet Example: To get the four servings is easy. You might start the day with a small glass of orange juice. That would count as one serving. At lunch, if you have a salad, that would be another serving. And at dinner, you might choose some green peas and a baked potato to give you the other two servings. ➽



1 BREAD CEREAL Group

Your grandparents probably ate more of these foods than you or your parents eat. That's because as people got more money, they switched from bread and pasta to meat, chicken and sweets. In addition, as Americans became more concerned with dieting and weight control, people ate less grain and cereal. They thought these foods contained lots of calories and therefore were fattening. This is not true! It's the spread on the bread, for instance, or the oily sauce on the spaghetti that adds most of the calories. In fact, this group is a good source of some important nutrients.

Foods in This Group: All products made with whole grain or enriched flour, rice and corn meal. This means such things as bread, muffins, pancakes, whole grain or ready-to-eat cereals, rice and enriched noodles of all kinds.

Why This Group Is Important: This group gives your body some of the B vitamins and some iron. Whole grain bread and cereals also contain fiber and many important minerals which are not found in refined breads and cereals, even the enriched or fortified ones.

How Much Should You Eat: Give yourself four servings from this group each day. Be sure to include whole grain bread or cereals.

Daily Diet Example: If you start your day with whole wheat toast, you're getting one of the four important servings you need from this group each day. At lunch, if you have a hamburger, the top and bottom part of the bun count as 2 servings. A small plate of spaghetti or another slice of bread at dinner can provide the fourth serving.

Bread Talk

White bread, made from white flour, is the most common bread in this country. Another kind of bread that people are baking and is being seen more and more at supermarkets is whole wheat bread. Both of these breads contain important nutrients. But whole wheat bread has more fiber and contains more trace minerals than white bread. So it's a good idea to include some whole wheat bread in your diet.

Whole wheat bread is light brown in color. That's because the flour the bread is made from uses the whole grain of wheat — including the parts that make flour dark, the bran and the wheat germ. But, be careful, just because bread is brown doesn't mean it's whole wheat bread. Sometimes bread manufacturers add coloring to white bread to make it look brown. It may be brown, but it's not any more nutritious.

If you want a whole grain bread, check the ingredient label to see that all the flour in the bread is *whole* grain flour. If the ingredients list things like "flour," "wheat flour" or even "unbleached enriched wheat flour," that is all white flour, and it's not a whole grain bread.

3 MILK CHEESE Group

Milk is probably one of the most popular of all drinks. That's good, since getting some milk every day is important. But there are other foods made from milk that can take the place of some of the milk you drink.

Food in This Group: Everything made from milk. You drink skim milk, lowfat milk, buttermilk, or whole milk. But milk products, such as cheese, yogurt and cottage cheese, are also good.

Why This Group Is Important: You get the mineral calcium and several vitamins from this group.

How Much Should You Eat: If you're between the ages of 9 and 12, you should have three servings from this group each day. Teenagers should have four servings.

Daily Diet Example: You might start the day with a glass of lowfat milk and some cereal. The glass of milk can count as one serving, and the milk you put on your cereal can count as a half serving. For lunch, a grilled cheese sandwich on whole grain bread is another serving. At dinner, 1/2 cup of yogurt with berries for dessert would serve as half a serving. That adds up to the three servings you need. ➠

4 MEAT and Poultry Fish BEANS Group

Believe it or not, dry beans are included in the meat group. In fact, a small bowl of kidney bean chili would count the same as 2 to 3 ounces of lean, cooked meat, poultry, or fish. But even though it's delicious, you wouldn't want to eat only chili all the time, would you? So here are some other foods in this group.

Foods in This Group: Chicken and fish are part of this group, as are other meats such as lean beef, veal, lamb, and pork. So are some things that you might not expect to find in this group: eggs, dry beans, dry peas, nuts, lentils, and peanuts.

Why This Group Is Important: These foods provide protein, as well as iron and zinc, vitamins B_6 and B_{12}.

How Much Should You Eat: Nutritionists tell us that two servings of 2 to 3 ounces are as much as you need of these foods each day. A serving could be a tuna salad sandwich, a piece of chicken, rice and beans, a peanut butter sandwich or a hamburger.

Daily Diet Example: At lunch, you might have bean soup. That could count as one serving. At dinner, just one medium size piece of chicken could be your second serving.

Bet you thought we'd never get to this group, didn't you? But, sure enough, here it is. This group is a little different. The key word here is caution. Don't eat food from this group too much or too often.

Foods In This Group: Here's what's in this group. The sweets are: sugars, honey, candy, chocolate, soft drinks, fruit punches, syrups, sweet toppings, jams and jellies, cookies, pastries, cakes and pies.

The fats are: butter, margarine, mayonnaise, other salad dressings, lard, cream cheese and fried snack-type foods, like potato chips or french fries, and fatty foods like spareribs, sausage, milk and ice cream.

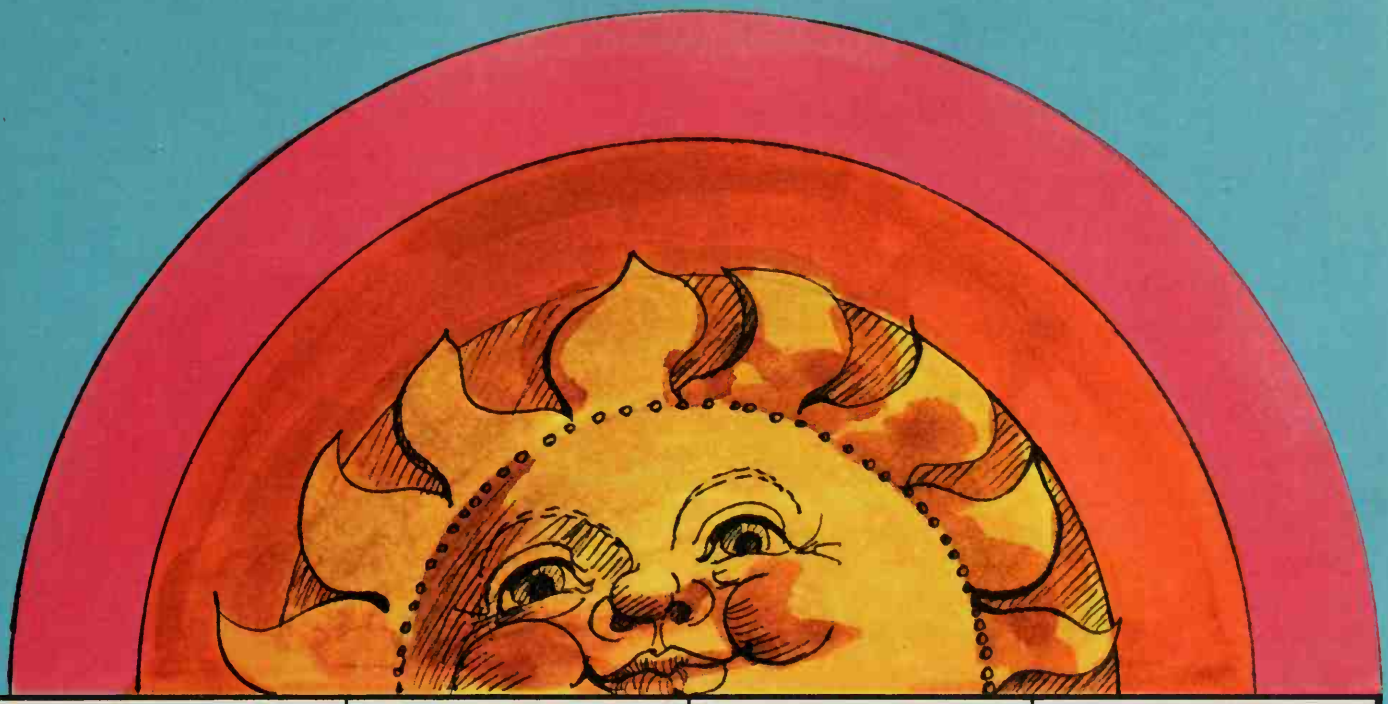
Why This Group Is Important: Except for some important nutrients in vegetable oils and in a few other products, these foods provide mainly calories. It's a better idea, though, to get most of those calories from the other four food groups. You'll not only be getting the calories, but the important nutrients as well!

Daily Diet Example: Nutritionists believe you will get enough fats and sugars if you eat a balanced diet from the other food groups. Besides, you probably eat some butter or margarine on your bread and dressing on your salads. Nutritionists do not recommend a certain number of servings from this group per day, so no daily diet example is given. □

Your Daily Food Chart

Now that you know how to use the five food groups, why not check if you're eating right each day. You can do that by making yourself a chart like the one below. Every time you have something to eat, whether it's mealtime or a snack, put a check in the box for that food type.

After you've kept your chart for a few days, take a close look. Are you eating a well-balanced diet? Your food chart will tell you. □



Breakfast	Lunch	Dinner	Snacks

What else do we know about foods and health? Quite a lot, actually. So don't stop now. You're almost an expert. ➡

Counting Calories

Calories are not nutrients. They are a measure, like inches or pounds. They measure the energy in food. They are also a measure of the amount of energy you use to live, grow, and act.

The idea is to get a balance — to take in about the same number of calories from food as you use up.

Except for water, all foods have calories. Different foods provide different amounts of calories. And you use up different amounts of energy depending on how active you are.

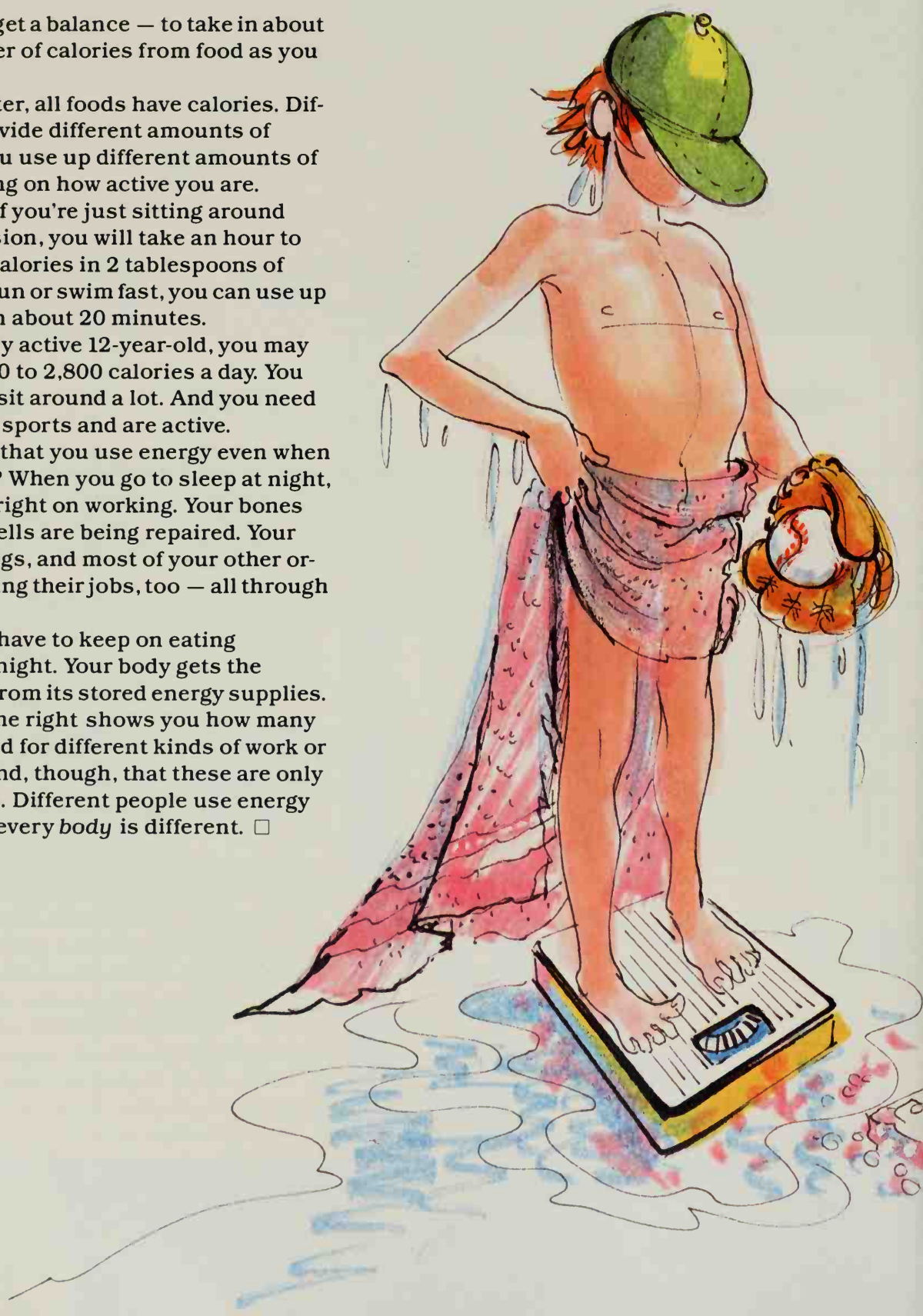
For example, if you're just sitting around watching television, you will take an hour to use up the 105 calories in 2 tablespoons of peanuts. If you run or swim fast, you can use up those calories in about 20 minutes.

If you're a fairly active 12-year-old, you may need about 2,200 to 2,800 calories a day. You need less if you sit around a lot. And you need more if you play sports and are active.

Did you know that you use energy even when you're sleeping? When you go to sleep at night, your body goes right on working. Your bones keep growing. Cells are being repaired. Your brain, heart, lungs, and most of your other organs keep on doing their jobs, too — all through the night.

But you don't have to keep on eating throughout the night. Your body gets the energy it needs from its stored energy supplies.

The chart at the right shows you how many calories you need for different kinds of work or play. Keep in mind, though, that these are only rough estimates. Different people use energy differently. And every *body* is different. □



You and Your Calories

Diets...Diets...Diets!

It seems that every time you turn around, people are talking about a new diet. Some of these diets say to eat only one kind of food, such as rice. Others tell you to eat as much as you want — as long as it's protein, or fruit, or whatever.

But most of them promise one thing: By following that diet, you'll lose more weight faster than on any other diet. *Don't believe it!*

There's only one way to lose extra body fat. That's to eat less and exercise more. To lose one pound, for instance, you have to eliminate 3,500 calories. That means cutting out or using up 500 extra calories every day for a week — or 100 calories every day for a month.

But in order to stay healthy, it's still important to eat a basic variety of foods, even though you are cutting down on the amount of those foods. And it's especially important to eat less of the high calorie, low nutrient foods, such as sodas, candy, cookies, cakes and fried snacks.

If you think you want to lose weight, the first thing you should do is see your doctor. If he or she agrees with you, then go ahead. But remember: A calorie is a calorie is a calorie. So to lose weight, eat less and exercise more.

When you're growing its a good idea not to follow drastic diet plans. If you cut down on the extras and add some vigorous exercise to your daily activities, you'll slim down. Use your common sense. And even if you're at the right weight, exercise is important to get the most from your food. □

Snacking Around on Snacks

Is snacking really bad for you? Well, yes and no.

The real problem isn't when you snack. It's what you eat when you *do* snack.

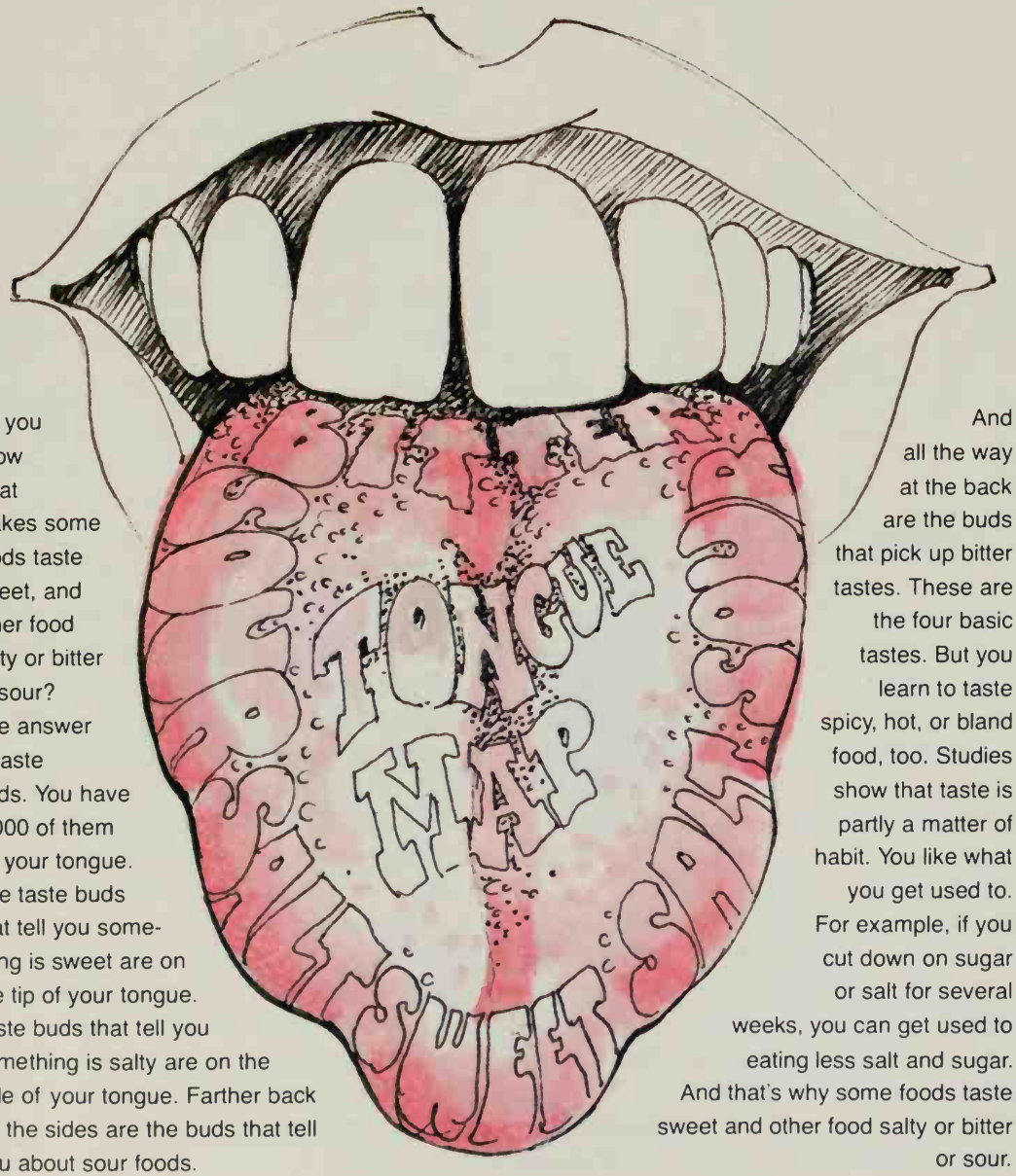
Americans are big "snackers." We spend $2.4 billion a year, on such snack foods as soda, other sweetened drinks, potato chips, pretzels, buttered popcorn, and corn chips.

Many snack foods have a lot of fat, calories, and salt or sugar in them — and very few other important nutrients. And that's the problem. The same goes for cookies and candy bars.

When you fill up on these snacks, you don't have room in your stomach for the other foods you need. And if you do eat the other foods you need — plus these snacks — you'll probably end up with too many calories and too much sugar and salt.

So what can you do? Well, the next time you feel like snacking on something, try some fresh juicy fruits or a glass of cold milk. Another good snack idea is raw carrots, peppers, and cucumbers — or a cottage cheese fruit sundae. You probably won't hear anyone complaining about your snacking around on those foods! □

How's It Taste?



Do you know what makes some foods taste sweet, and other food salty or bitter or sour? The answer is taste buds. You have 9,000 of them on your tongue. The taste buds that tell you something is sweet are on the tip of your tongue. Taste buds that tell you something is salty are on the side of your tongue. Farther back on the sides are the buds that tell you about sour foods.

And all the way at the back are the buds that pick up bitter tastes. These are the four basic tastes. But you learn to taste spicy, hot, or bland food, too. Studies show that taste is partly a matter of habit. You like what you get used to. For example, if you cut down on sugar or salt for several weeks, you can get used to eating less salt and sugar. And that's why some foods taste sweet and other food salty or bitter or sour.

Sugar is Sweet, But Not So Neat!

Sugar causes cavities and tooth decay. And that's a serious problem. One dentist explains the problem in this way: If all 100,000 dentists in the United States worked day and night for a year filling cavities, there would still be as many new cavities to fill at the end of the year as when they began.

It's no wonder Americans have so many cavities. On the average, each one of us eats more than 130 pounds of sugar and sweeteners a year. How much do you think you eat?

But there are also a couple of other problems caused by eating too much sugar.

Sugar is so highly refined that it gets digested very quickly. It doesn't stay in your stomach very long. That means you may be tempted to keep on eating and snacking. And you know what can happen then! Suddenly, you find out you have a weight problem.

The second problem with sugar is that it's "empty calories." What does that mean? Well, most foods contain some vitamins and minerals. For example, milk has carbohydrates plus protein and minerals. Fruits have some natural sugars plus vitamins and fiber.

But sugar has only calories. It has no vitamins, no minerals, and no protein. That's what we mean when we say sugar has "empty calories."

You don't have to stop eating sugar, and sugary foods, but it wouldn't hurt to cut down. And when you go to the dentist, you might have fewer cavities. □

Salting Away Facts About Salt

All foods contain some salt. And "some" salt is about all you really need!

Some scientists think Americans eat about 2 to 5 times as much salt as they should. And eating too much salt, they say, may lead to a disease called hypertension or high blood pressure, and that can lead to heart disease.

Salt has been used for thousands of years for preserving fish, meats, and vegetables. But lately, we have been eating a lot of foods that have unusually high amounts of salt in them.

Highly processed foods like processed cheeses, canned soups, ready-to-eat cereals, frozen entrees, and TV dinners have a lot. So do snack foods, potato chips, pretzels, salted nuts and most crackers. Processed meats, like corned beef, bacon, bologna, ham, and hot dogs, also have a lot of salt.

You're probably already getting more salt than you need. So be sure to read the labels of food to see if salt has been added. But don't just look for the word salt. Soda, sodium, or the symbol "Na" will mean the same thing.

Another good idea is to get in the habit of tasting your food before you reach for the salt shaker. You might be surprised to find that the food tastes good without added salt.

Here are some other foods that are high in salt: meat tenderizer, barbecue sauce, bouillon cubes, canned fish, catsup, msg, garlic salt, olives, soy sauce, corn chips, sausages. □

Adding Up Additives

If you read the food labels and come across a name that doesn't sound familiar, chances are it's an additive.

An additive is anything that is added to food before it goes into a package. There are more than 3,000 different additives.

Vitamins and minerals are added to processed foods to improve their nutritional value. In the cases of breads, noodles, and rice, vitamins and minerals are added to replace some of the nutrients lost in the refining process. But manufacturers may not be able to add all of the nutrients because they don't know how.

Preservatives are an example of one kind of additive. They're put in foods to keep them from going bad or spoiling. For example, BHA and BHT are added to potato chips to keep them crisp. Potato chips can then stay on supermarket shelves longer.

Some preservatives are harmless. But others may not be. Right now, for example, the government is considering banning the use of sodium nitrate and nitrite as preservatives. Even though these preservatives are useful in keeping some kinds of meats from spoiling, they also cause cancer in animal tests.

Artificial colors and flavors are also examples of additives. And they are very popular. In fact, we use 10 times as many food colorings today as we did 30 years ago.

Government agencies test foods and additives to be sure they are safe. They prevent the use of foods which may cause problems. □

Fast Facts About Fast Foods

Americans are eating less breads, cereals, and vegetables, and more meat, fat, and sugar than they did 30 years ago. And they're eating more in fast food restaurants.

Some fast foods — like hamburger, fried chicken, pizza, fried fish, french fries, snack type fruit pies, shakes, soda and punch — tend to be high in fat or in sugar and high in calories.

That doesn't mean they don't have any other nutrients. Most of them do.

- Hamburger, fish and chicken have protein, iron, and vitamin B_6 among other things.
- Enriched buns have thiamin and riboflavin.

If you eat these foods once in a while, that's probably fine. But if you ate only these foods you'd be short on the nutrients found in fruit, salads, whole grains and milk. You might get too many calories, and too much fat, sugar and salt.

So, if you have a hamburger and a drink for lunch at a fast food place, balance it out at dinner by having a meal with plenty of fresh vegetables, fruit, and grains — and not too much fat, sugar and salt. □

Well now,
that's a lot about food — carbohydrates, proteins, fats, vitamins and minerals, fruits and vegetables, breads and cereals, milk and cheese, meat, poultry, fish, beans, fats and sweets — the nutrients and the foods that make you what you are.
But really, putting it all together isn't very hard. With what you know now, you can eat a balanced diet — a diet that's good for your body and fun for your mouth.

CRAFT CORNER

Puppets have been favorite playthings of children — and adults — for centuries. Puppets come in many sizes and shapes and can be made of many materials.

You can make puppets and use them to put on a show for your friends or brothers and sisters.

Here's a puppet that's fun to make because you can make your toy and eat it, too — sort of!

FROM PEANUTS TO PUPPETS

Peanut Shell Finger Puppets

Here's What You Need:

- Some large unshelled peanuts
- Colored felt tipped pens or markers
- Small sharp knife

Here's What You Do:

1. Carefully cut off the bottom of the peanut shell. Let the peanut fall out. Eat it.
2. Make a face on the upper part of the shell with the pens. Try decorating the shells to look like nursery-rhyme characters.
3. Glue hair, hats, clothes on the peanut shells using yarn, string, paper, or cloth. Or a bald peanut might be interesting.
4. Put the puppet on your finger and tell a story.

Stick Puppets

Here's What You Need:

- Unshelled Peanuts of all sizes
- Colored pens or markers
- Large needle
- Light-color thread
- Ice-cream pop stick or a flat stick the same size
- Scraps of yarn and cloth

Here's What To Do:

1. Pick a small round peanut for the head, and a long one for the body. Find some very small peanuts for the arms and legs.
2. Thread the needle. Bring the two ends together, tie them in a knot.
3. Sew the head to the body. Be careful not to break the shell, but just to pierce it.
4. Sew on the rest of the parts to the body, following the same instructions as for the head.
5. Decorate the shells so they look like characters. Use bright colors so they can be seen.
6. Sew the final thread through the head of the puppet. Glue this string to the stick and watch your puppet dance.

DID YOU KNOW?

- About 7,500 varieties of apples are grown in the world today.
- Babe Ruth once ate 20 hot dogs just before a baseball game.

Quick Quiz You Can't Fail

What is the correct way to thaw frozen meat.

A. Use your hairdryer.

B. Sit on it.

C. Put it in the refrigerator.

JOKING AROUND

Willy: How are an egg and a horse alike?
Nilly: Both must be broken before being used.

Willy: How do you make gold soup?
Nilly: Put in 14 carrots.

Willy: Why didn't the little boy eat his spinach after his mother told him it would put color in his cheeks?
Nilly: He didn't want green cheeks.

A NUTRITIOUS FIRST FACT

Apricots were the first fruits planted in California

Name the Food!

This is something to cluck at.

Answer: Egg

RECIPE

Nutritious and Delicious Sandwich Filling

Here's a filling that is fun to make, fun to eat, and it's good for you. You can make it the day before you use it. Just store tightly covered in the refrigerator. Stir lightly before using.

Here's What You Need:

- 1 cup crunchy peanut butter
- 2 tablespoons honey
- 1 cup peeled, diced oranges

Here's What You Do:

1. Thoroughly mix peanut butter and honey.
2. Stir in oranges.
3. Chill.

Use about 1/3 cup filling for each sandwich.

DO KIDS IN OTHER COUNTRIES EAT LIKE ME?

What People Grow and Eat Around the World

What's your favorite food? If you're like most young people, you might say pizza, steak, or hamburgers. That is, if you are a young person from the United States.

But what if you lived in Russia, or China or Africa? If you were a young person in those countries, your answer would probably be quite a bit different.

One reason for that is simple: Different people like the taste of different things. But there are many other reasons why the foods people eat around the world are different.

The weather is one. It plays an important role in the kinds of crops that different countries can grow. And 90% of the food people eat is grown in their own country.

Rice

So, if you lived in Southeast Asia, you would probably eat a lot of rice. That's because rice grows well in hot, wet climates — the kind of weather you would find in that country.

In Africa or South America, you might often eat a plant called the *cassava*. It's sort of like the potato. And it grows well in the hottest parts of the world, called the tropics. It can be cooked in soups or stews, or even made into flour for cakes and bread.

Cassava

Finally, if you were growing up in Russia, you might eat a food called *kasha*. It's made

Kasha

from cooked wheat. (Vegetables, and sometimes pieces of lamb, are also added.)

Wheat grows well where it is cool and dry — the kind of weather you would often find in Russia. That has helped Russia become the largest producer of wheat in the world. Is there any wonder, then, that kasha — which is made from cooked wheat, remember — is often eaten two or three times a day in many parts of Russia?

Your favorite food, then, might seem kind of strange to kids your age in other parts of the world. Take something as simple as bread, for example. Many young people in the United States like whole wheat or rye bread. But a young person in France might find that strange. The French eat long, thin loaves of bread that have a chewy texture.

French Bread

In Mexico, bread looks like a large, thin pancake. It's made from corn flour. And it's called a *tortilla*.

Tortilla

A young person in Israel or Egypt might feel right at home with Mexican bread. That's because bread in those countries, as well as in other Middle Eastern nations, is also flat and round. It's called *pita*. Pita bread is made with a pocket-like opening. That's for stuffing other kinds of food to make a delicious pita sandwich. ➽

Pita

Different Places, Different Foods: A Quick Eating Trip to Faraway Places

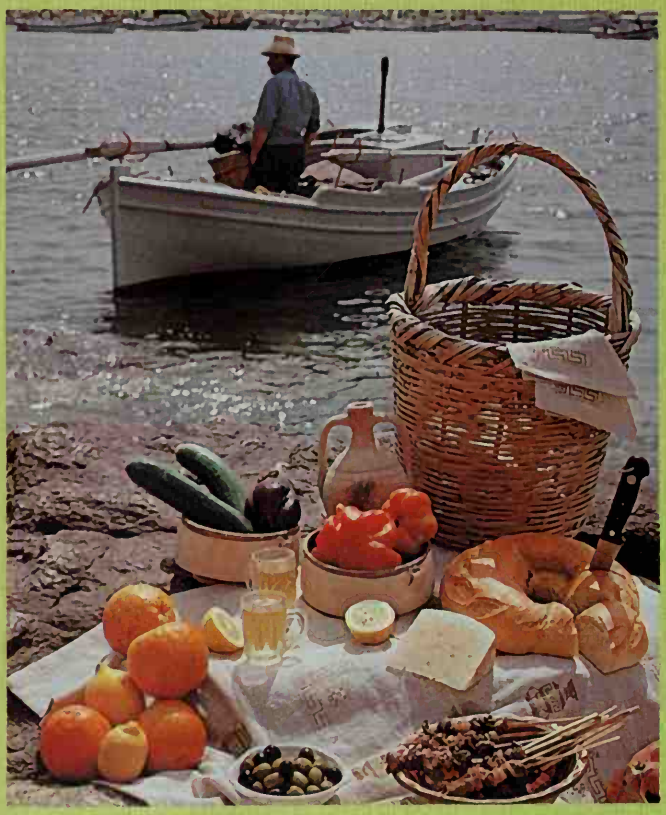
There are many other differences in the foods people eat around the world. To see what some of those differences are, let's take a quick eating trip around the world. Our first stop is...

Brazil: We've arrived just in time for lunch.

That's good, because in Brazil—like other South American countries—lunch is the main meal of the day. As we sit down at the table, we see boiled rice and mashed black beans, which are present at almost every South American meal, a tomato salad and a chicken dish. Everyone is drinking water flavored with a little lime juice. Don't eat too much, though, because we have supper waiting for us at our next stop...

Northern Russia: Tonight's meal is in northern Russia. There's black rye bread, boiled potatoes, and vegetable soup. But the first course, which we see here, is a raw frozen fish, slivered bones and all, for dipping in a mustard sauce. After a restful evening, we leave the next day for...

Greece: Near the sea in Greece, we find a



meal that consists of cheese and other dairy products. There's also a heavy sourdough bread, olives, fruit and meat-kabobs. We have time for a second helping of that before we head to...

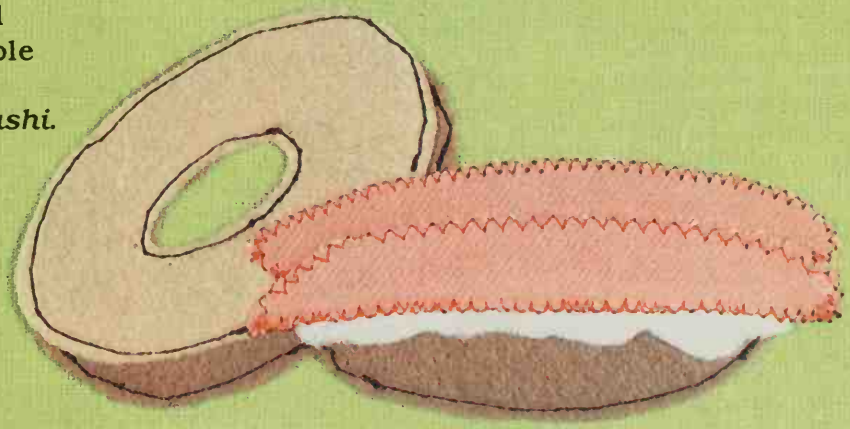
Ethiopia: There is a special kind of bread that's very popular in Ethiopia. It's called *injera,* and it looks like a large, flat pancake. It is very chewy, and is made from the seed of teff. That's a cereal grain that is almost never found in any other country. With the injera, we'll eat a vegetable stew called *wat.* Wat is seasoned with hot pepper and other spices, and is a very typical meal for people in this country. A glass of water is served with our meal here, since only very wealthy families in this country can afford cow's milk. As we finish some fruit, which is also part of most meals here, we are already thinking about our next stop in...

Japan: Boiled rice, fish, vegetables, and fresh fruit is the meal we find young people eating in Japan. The fish is either lightly fried, stewed, or raw. Raw fish is called *sushi.* We also have something else that is a major part of most Japanese meals. It's called *tofu.* That's a partly solid, paste-like cake made from soybeans. After finishing our tofu, our

journey takes us home to...

The United States:

Our quick eating trip around the world has shown us many different kind of meals. But even in our own country, the food we eat is often different from place to place. In what parts of our country would you most likely find things like: chili and tamales; grits and corn pone; or bagels and lox? ➽



Throughout the World, Farmers are Producing Food for People

Somewhere in the world—at this very moment—someone is tilling the soil to produce food for people. Someone else is harvesting a crop. And yet another person is caring for livestock.

Those people are farmers. And, along with millions of other farmers in the world, they make up one-half of the world's population.

Some countries, of course, have many more farmers than others. In the United States only 2 out of every 100 people are farmers. In China, however, 62 out of every 100 people are farmers.

With that many farmers in the world, you might guess that a lot of the world's land is used for farming. And you would be right. Almost a third of the land in the world is used for farming—some of it for growing crops, and the rest for raising livestock.

The map on pages 112 and 113 shows the world's land area. You can see where most of the world's crops and livestock are raised. You can also see the parts of the world where there is very little—if any—agriculture. Those nonagricultural areas are either too cold, too dry, or too mountainous for farming. □

How Many People Are Farmers?

Here is a list of 22 different countries in the world. Next to the name of each country is the percent of the country's total working population who work on farms.

Bangladesh	85%
Ethiopia	81%
India	65%
China	62%
Nigeria	56%
Morocco	53%
Egypt	52%
Romania	50%
Brazil	41%
Mexico	39%
Poland	33%
Colombia	30%
Russia	19%
Argentina	14%
Japan	13%
Italy	13%
Czechoslovakia	12%
France	10%
Israel	8%
Canada	6%
West Germany	5%
United States	2%

What do these percents mean?

In the United States
1 worker in 50 works on a farm.

In Colombia, South America, it's 15 out of 50.

In Romania, that's in Eastern Europe, half of all workers work on farms.

Where the Food Grows

Wheat — More wheat is grown throughout the world than any other crop. Russia produces almost three times as much wheat as any other country. Other large wheat-producing countries are the United States, China, India, Canada, France, and Turkey.

Corn — This is the second largest-grown crop in the world. The United States leads the world in corn production. It grows almost half of the corn in the world. Other corn producers are China, Brazil, Russia, Romania, and Yugoslavia.

Rice — China grows about 132 million tons of rice each year. That's two-fifths of all the rice grown in the world. The United States grows only 5 million tons of rice. And it sends about half of that to other countries. Most of it is sent as food aid. Other rice-growing countries are India, Indonesia, Bangladesh, Japan, and Thailand.

Potatoes — Russia is also the leading grower of potatoes in the world. The United States, China, Poland, and West Germany follow.

Cassava — Maybe you have never heard of this potato-like plant. But, for many people in the world, it is a basic food. Brazil is the world's largest producer of the cassava. It's followed by Zaire in Africa, Indonesia, Thailand, and Nigeria.

Vegetables — Just about every country in the world produces one kind of vegetable or another. That's because different kinds of vegetables grow well in just about all different kinds of climates. China, India, and Japan grow more than half of all the vegetables in the world. Russia is fourth. And the United States is fifth. But we grow a larger variety of vegetables than any other country — 44 different kinds.

You can probably guess what vegetable is grown more than any other. It's the tomato. But the next two most widely grown vegetables might surprise you. They're the cabbage, and onions.

Fruit — Like vegetables, fruit grows just about everywhere. The United States grows more fruit than any other country. But Italy, India, Brazil, France, and Spain are close behind.

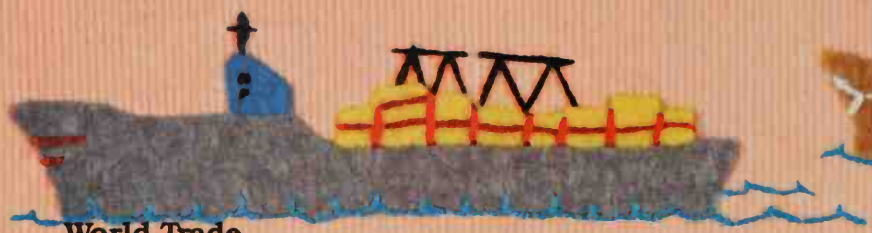
Meat — 184 countries and territories — from Cook Island in the South Pacific to Mongolia in Asia — produce meat. The major kinds of meat and the largest producers are:

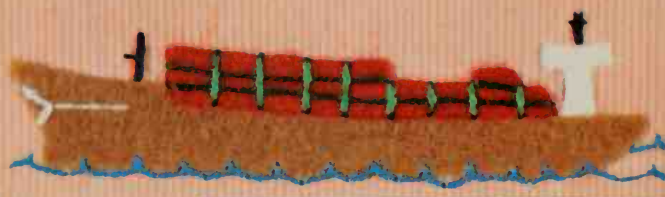
- Beef and Veal: United States, Russia, Argentina
- Pork: West Germany, China, United States
- Mutton and Lamb: Russia, Australia, New Zealand
- Buffalo: China, Pakistan, India
- Goat: China, India, Pakistan
- Horse: United States, Mexico, Italy
- Poultry: United States, China, Russia

Milk — There was enough milk produced in the world in 1978 to feed every person on earth one large glass every day for the whole year. Milk is the most plentiful "natural" food in the world. (A natural food is what food is like before it is processed into something else, such as wheat into bread.) Russia is the top cow milk producer. It's followed by the United States, France, West Germany, and Poland. The most buffalo milk comes from India; sheep milk from Turkey;and goat milk also from India. ➔

The Food Map

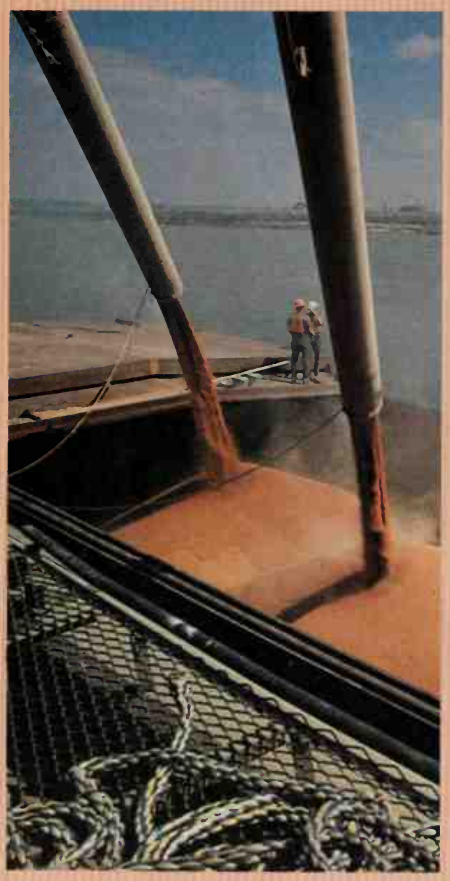
Key to map:
Wheat
Corn
Rice
Potatoes
Cassava
Vegetables
Fruit
Meat
Milk





World Trade

Suppose you had to pay individual farmers for all the food you eat? Most of your money for food would go to American farmers. You might pay someone in Florida, for instance, for orange juice. You might pay the Kansas wheat farmer for bread.



A grain barge.

But who would you pay for a cup of hot chocolate, or a glass of iced tea, or coffee? Our country does not produce those things. So, you would pay farmers in other parts of the world for them.

About one-sixth of what we eat comes from other countries. Most of the tropical fruit we eat, such as bananas and pineapples, come from other countries.

Modern methods have made it possible to ship large amounts of food from one part of the world to another. Those methods include up-to-date refrigeration and faster transportation—both over land and water.

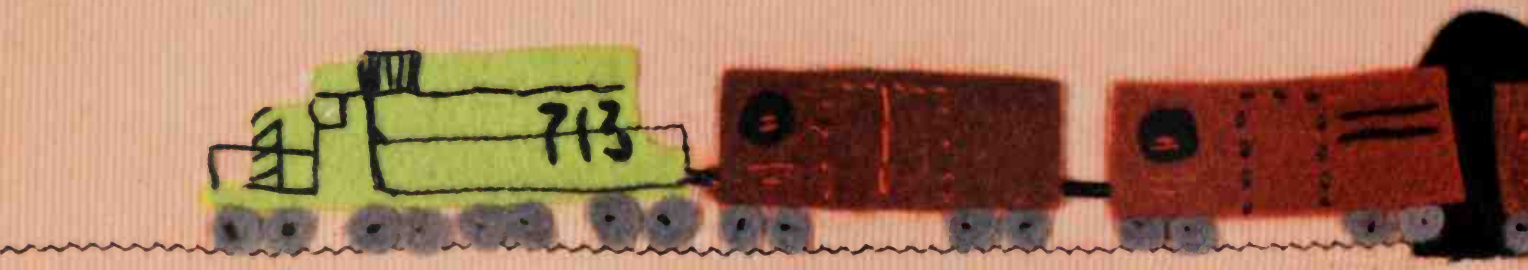
The United States also sells food abroad. We sell soybeans to Japan and corn to Spain. We send wheat to India, Russia, and China. And tables throughout the world have our lemons and almonds on them.

By selling our food to other nations, we do more than help to fill empty stomachs. We provide countries with more interesting—and often, more nutritious—diets. Selling food abroad also brings in money for America. □

Colorful Markets

Bright lights, wide aisles, the jingle of cash registers: Those are just some of the sights and sounds of an American supermarket. All provide their customers with such basic foods as meat, dairy products, breads and cereals. Some of them, though, even sell such unusual things as reindeer steaks, whale blubber, and, yes, even fried ants.

A floating market in Bangkok, Thailand.



But, still, no supermarket is as exciting as the open-air markets that are found in many parts of the world. Here, the produce is out for everyone to see and touch. The smells of different meats, vegetables, and sweets all mix together. The sounds of buyers and sellers mingle.

These colorful markets are crowded and noisy. But they are also always exciting.

In the Asian nation of Thailand, hundreds of women sell wares in a famous floating marketplace. They work on tiny canoes and flat-bottomed boats that bob up and down on a narrow river.

In the Central American nation of Guatemala, the market stalls are run mainly by Indian women in colorful dress. Would you like some mangoes or bananas, beans or corn kernels, chicken or pork? You can buy them all here.

One of the oldest open-air markets in the world is in Jerusalem, Israel. Between ancient buildings, you wind along narrow streets of the market. Along these streets, you can buy almost anything you could possibly think of—and a few things you probably would never think of! You can buy fresh bread stuffed with meat and vegetables. You can pick up boxes of dried fruits, nuts, and herbs. Or you can buy—or, perhaps, just pass by—raw camel steaks or lamb's heads! □

The Jerusalem market place.

Women selling vegetables and fruits in a Guatemalan market.

Hungry People

With half the people in the world farmers, and with millions more working in the markets and food factories, you'd think there should be more than enough food for everyone. But did you know that every night, as many as 500 million people throughout the world go to bed hungry. EVERY NIGHT!

In our country, that's hard to believe. Our country is rich. We have an abundance of food. We also have the skill and knowledge to produce more food.

Yet, hunger is found in the United States as well as in the deserts of Africa. It's found in rich nations as well as poor. That's because poverty exists everywhere. And hunger is the result of poverty.

Famine

Throughout history, hunger also has often been caused by famines. A famine is a period of time when there is a great lack of food.

Hunger and malnutrition affect millions of children, including this young boy in Bangladesh.

Dried out land means no food. This picture was taken during the drought in Sahel, Africa.

Famines are caused by droughts, floods, insects, and/or plant diseases that cause crops to fail.

From 1968 to 1974, for instance, a drought occurred in Sahel, Africa. During that period, there were times when it did not rain for as long as 360 days in a row. This brought about a famine. And millions of people faced hunger, starvation, and disease.

Yet today, people have learned to control most of the causes of famines. For instance, dams can help prevent floods. Also, the water held behind the dams can be used when there is not enough rain. Chemicals can be used to control plant diseases and insects that destroy crops.

These things are costly. Yet, the United States, the Food and Agriculture Organization of the United Nations, and others are helping. They have provided money and the technology to help poorer nations help themselves in preventing famines in the future.

Hunger and Malnutrition

But even without famines, many people in the world are hungry because of poverty. Also, there are many, many more who do not have all the right foods to eat. They are not necessarily hungry, but the foods they eat do

not provide them with the nutrients needed to keep their bodies working. They suffer from malnutrition. We also say they are malnourished.

A Haitian mother feeding her child. Sometimes there isn't enough.

These two problems — hunger and malnutrition — are real. They exist throughout the world. There are perhaps one half to one billion people who are hungry or malnourished.

Most of these people who are hungry or malnourished live in about 65 underdeveloped nations in Africa and South and Southeast Asia.

These nations make up about one-third of the world's population. Half of these people live in total poverty. The poverty is caused by a lack of jobs. In 1975, for example, as many as one billion people lived on approximately $150 per person for the entire year.

These people simply cannot afford to buy or grow all the food they need. And the food they have is often high in starch, but low in many of the needed nutrients.

Such foods as rice, barley, bananas, potatoes, and cassava, for instance, have little or no protein. And these foods make up a great part of the diet for many people in Asia, Africa, and Latin America.

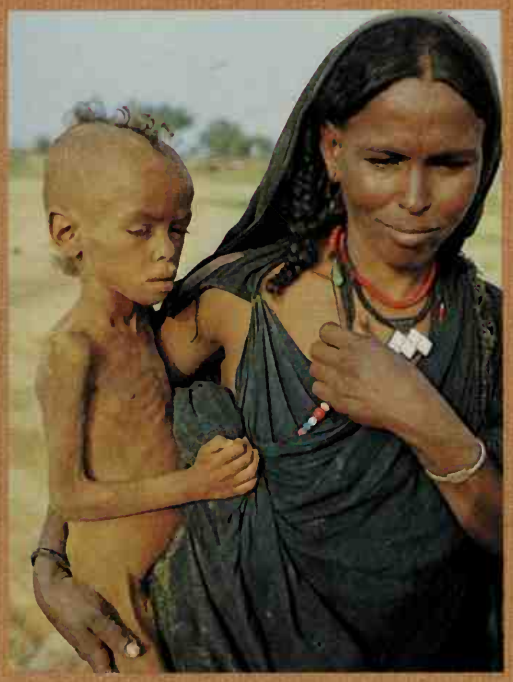
Malnourished people also do not get important vitamins found in certain foods. Children usually suffer from malnutrition more often than adults. That's because children need more protein and vitamins to help them grow.

Malnutrition can cause damage to a young person that can last for life. A malnourished child's brain, for instance, does not develop

The Price of Grain

Grain such as rice, wheat, and corn are the main part of the diet for millions of people. So, the price of grain has a great deal to do with the number of people in the world who are hungry. The price of grain goes up and down. When there's lots of grain around the price is low. But when the weather has been bad, or insects have eaten some of the crop, the supply of grain drops and the price goes up.

Already, millions of people spend as much as 80% of their money on food. And when the price of grain goes up they don't have any money left to pay the higher price. So many times they do without. Some people may even go hungry.



This child has Kwashiorkor because of lack of calories and protein.

the way it should. And this cannot be repaired. A malnourished child will also not be able to learn as well as other children. And, a malnourished child often does not grow properly.

Some diseases are connected with severe malnutrition. One is called Kwashiorkor (qua she or ker). A person with this disease has rusty-colored hair, a puffed belly, and peeling skin. children who do not get enough to eat, especially enough protein, get this disease.

Reasons Why

Many poorer people simply do not have the skills or technology to produce all of the food they need. For example, they might not be able to afford good seeds and enough fertilizer to produce all that could be possible from the land. Or, perhaps, there's not enough water on the land and the government doesn't have the money to build expensive dams for irrigation. At times, too,

Ancient farming tools and methods can mean less food production.

Malnutrition in the United States

Malnutrition is not as big a problem in the United States as it was years ago. That's because of the government programs that help people in poverty to get the food they need. Some of these programs are especially for infants, school children, and the elderly. Also, we now add many necessary nutrients to our basic foods.

Vitamin D, for instance, is added to milk. Before it was added, though, a bone disease called rickets was common.

Vitamins B_1 and B_2 and niacin are now added to bread. And iodine is added to salt. Before these were added, however, many people suffered from such diseases as beri beri, goiter, and pellagra. These diseases were the result of malnourishment.

the people's customs interfere. They won't plant a crop that might be nutritious because it is not what they're used to eating.

Also, poor countries often do not have industries. And without industries, there are no products to use as trade for food.

But malnutrition is not something that happens only to poor countries. There are malnourished people even in the United States. How can this happen?

Sometimes, it is simply a matter of eating the wrong kinds of food. Americans eat lots of sweets and other junk food. Sometimes it's because people cannot afford to buy the food they need. Often they simply do not know what types of food they should be eating.

Introducing new ways may mean more to eat in the future.

What Can Be Done?

There are two important things that can be done to help the world hunger problem.

One is to help other countries grow more of their own food. The other is to help these countries make more money so they can buy the food that they cannot grow.

Today, the United States and many other countries are helping the underdeveloped countries in these ways. But it may take many decades to help them. In the meantime, other things are being done.

Food aid from the United States helps in an emergency, like during this drought in Nigeria, Africa.

Food Aid

Some food is given directly to hungry people. Especially in times of famine. But usually, the United States Government loans money at very low rates of interest to poorer countries so that they can buy the food they need from American farmers.

New Sources of Food

There are also new kinds of foods being developed that may help solve world hunger problems. There are new kinds of fast-growing grain, for example. There are foods from the sea, such as krill and seaweed. There are also milk-like drinks. Some of these are made from soybeans. They are rich in protein, but have no sugar.

But, even with what is being done, hunger and malnutrition will be a big problem for a long time to come.

Miracle rice—
it means more to eat.

CRAFT CORNER

Seed mosaics are fun to make. They're easy, too — except for one part. That's collecting the seeds. You'll need many different sizes, shapes, colors, and types of seeds. So, if you plan to do this project, start a seed collection in glass jars.

If you've ever seen the ceramic tile mosaics on some buildings or walls, you'll know how beautiful they can be. Your seed mosaic can look the same way — on a smaller scale.

What You Need:

- Seeds
- Board, paper, or whatever you want to decorate
- Clear-drying glue
- Tweezers

Here's What to Do:

1. Collect the seeds. Make sure they are dry. They can be dried in an oven or in the sun.
2. Draw the design lightly.
3. Glue a small area of the design and apply the seeds. You may need the tweezers to place them. Work with one small area at a time. Use lots of glue. Let it dry.
4. Coat the design and seeds with a clear sealer, such as varnish or shellac.

Instead of seeds you may want to use small pebbles or shells.

DON'T THROW AWAY THAT SEED!

A FOOD FIRST

Milk chocolate was first made in Switzerland in 1876.

Quick Quiz You Can't Fail

What U.S. State sells more of its farm products to foreign countries than any other State?

A. France
B. Des Moines
C. Illinois

RECIPE

Some New Things in a Sandwich

Okay. Maybe a chicken salad sandwich is your favorite. But why not try something new? Here's an idea for Pita Pocket Sandwich.

What You Need:

- Whole wheat pita bread
- Sliced mushrooms
- Shredded lettuce, cabbage, and carrots
- Sliced green pepper
- Chopped tomatoes, onion, and celery
- Sliced cucumbers and squash
- Your favorite salad dressing

What You Do:

1. Wash and chop vegetables; set aside
2. Cut bread in half
3. Open bread and fill each pocket with different vegetables.
4. Put a little of your favorite salad dressing into the pocket.
5. Serve a delicious, new (and nutritious) Pita Pocket Sandwich.

You can turn your pita sandwich into a meal as easy as one, two, three:

1. Add grated cheese or cottage cheese, or
2. Add leftover cooked chicken, turkey, or pot roast, or
3. Add tunafish.

JOKING AROUND

Teacher: Billy, what kind of cattle do people in Alaska raise?

Billy: Eski-moo cows?

Smart: When are Irish potatoes not really from Ireland?

Smarter: When they're french fries.

Dumb: Where are you most likely to find chili beans?

Dumber: At the North Pole?

Name the Food

Can you guess what this food is? Here's a hint: Animals like it as much as people. If you can't guess what it is in the next 3 hours, turn the page upside down for the answer.

Answer: Corn

DID YOU KNOW?

- Italian pasta (noodles) first came from China.
- French croissants (rolls) were first made in Hungary.
- The Irish Potato got its start in South and Central America.
- And the good, old American hamburger actually came from Germany...from a town called Hamburg, of course.

"WILL COWS GIVE CHOCOLATE MILK IN THE FUTURE?"

A Look at Food and Eating in the Years Ahead

Will the kinds of food you eat change very much in the future? Probably not. But one thing is for sure: Improvements in the methods of farming will certainly continue to take place. And those improvements will help to feed many more people around the world. But what might your life be like when it comes to food and eating in the future: Let's turn the clock ahead 50 years to find out!

Around the Nutrition Module

The year is now 2029. You're in your early 60's. You have children of your own, and grandchildren.

Many changes have taken place during the last 50 years. Remember back in 1979 when the first Skylab fell to earth? Well, your oldest daughter is now Commander-in-Chief of Skylab 17. Next week you plan to visit her for a few days, and you have already bought your ticket on the space shuttle — Universal Transport.

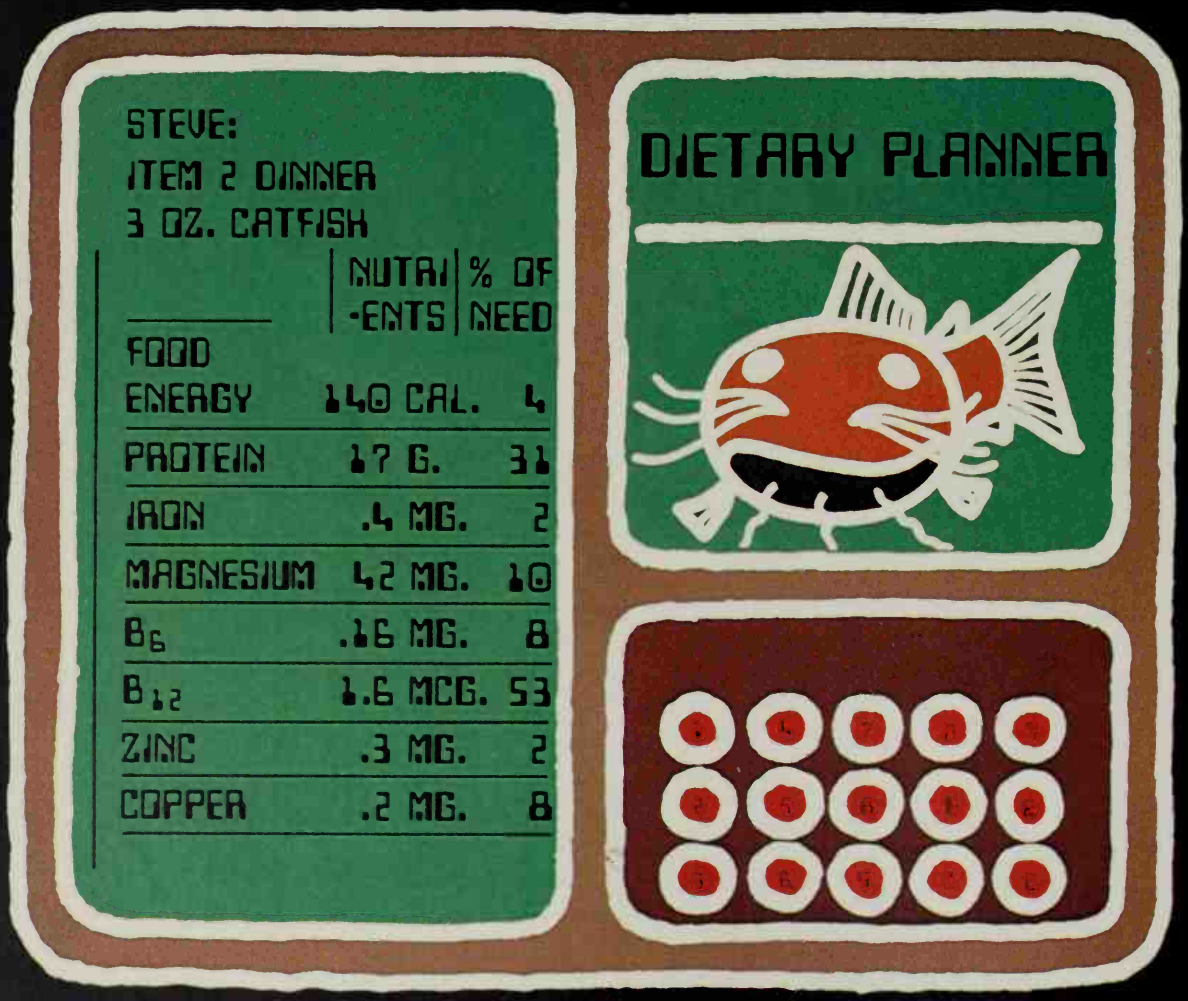
But tonight you're having dinner with your son Alex and his family. There's your daughter-in-law Mary, and your grandchildren Steve, 15, and Allison, 10.

Right now, it's early morning. You've just entered the Nutrition Module. (Back when you were a kid, it was called a kitchen.)

See that thing on the counter that looks like a TV screen? It's a Dietary Planning Computer. Those handy gadgets have been around for quite a while now.

Every time your son's family brings home food from the Nutrition Supply Center (that's an old-fashioned supermarket), they pass the labels of the food by the home computer scanner. The computer records all of the food in its memory bank. The computer then keeps track of all the meals that are served. And it subtracts the food used from the Food Inventory. That way, the family always knows what food it needs to buy.

The computer also knows the height, weight, and age of everyone in the family.



And it knows how many calories, and how much protein, vitamins, minerals, and other nutrients each member of the family needs every day.

Both your son and daughter-in-law are doctors. So they divide their work in the hospital and at home equally. This week it's your son's turn as Home Environment Controller.

"Steve is going sky-gliding tomorrow morning," your son says. At the same time, he marks that information down on Steve's Dietary Planning Card. The computer will then be able to take that information into consideration when suggesting a dinner menu for the evening. And it will make sure that the meal includes extra nutrients for Steve for the extra energy he will need the next day.

Just then, your daughter-in-law comes into the nutrition module.

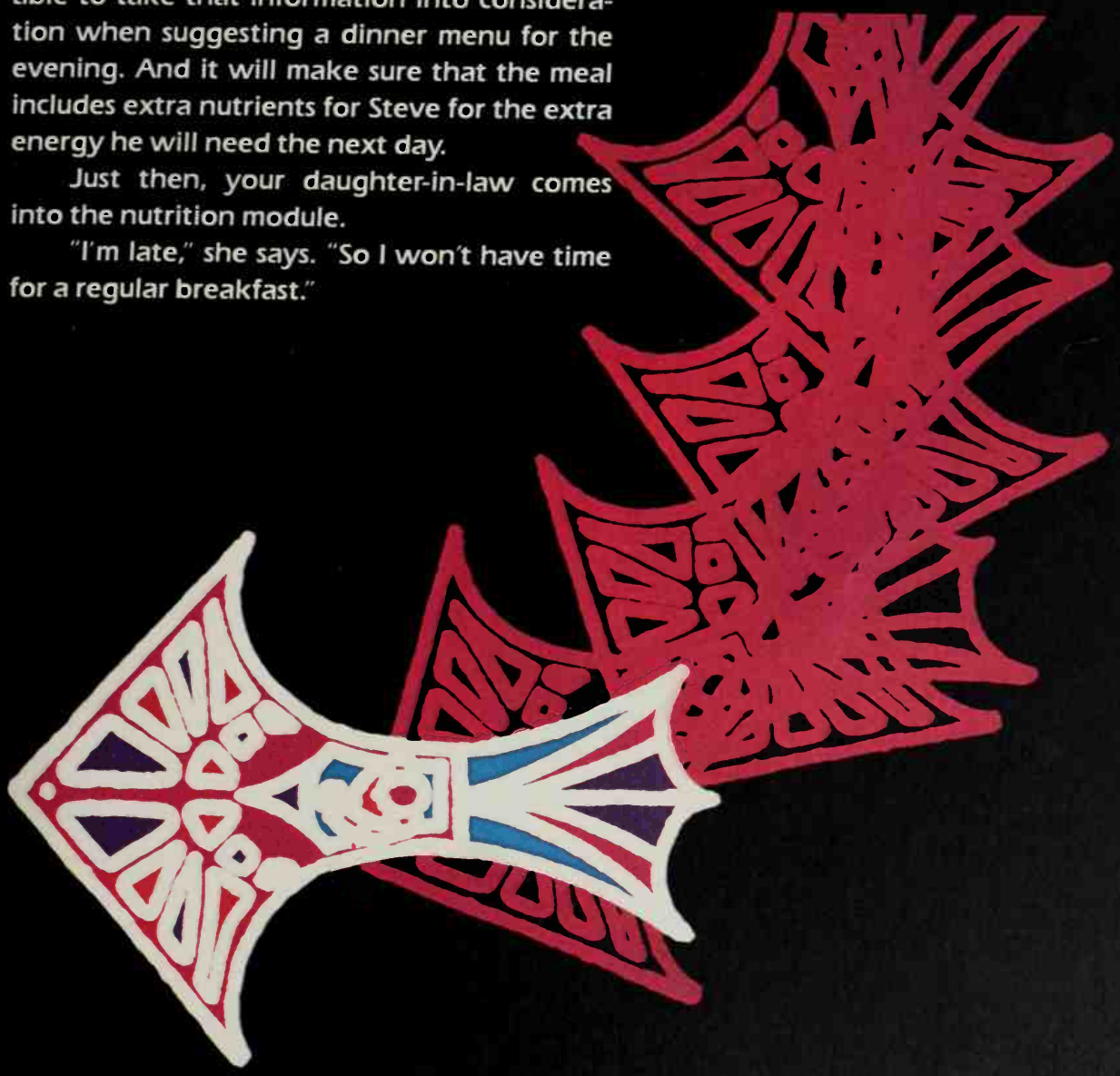
"I'm late," she says. "So I won't have time for a regular breakfast."

On her way out to the transporter station, she grabs a breakfast food bar.

There are two kinds of meals that people eat in the year 2029. One kind — a food bar — looks like an old-fashioned candy bar.

Actually, these food bars have been around for a long time. In fact, the first astronauts used them even before you were born.

But it's only been in the last 30 years or so that food bars have been sold in all the Nutrition Supply Centers. And today, there are all kinds of food bars. Some taste like pizza;



others taste like hamburgers; and still others taste like ham and eggs. But each food bar has the nutrients of a whole meal in it — not just of a single food.

There are even special prescription food bars. Doctors prescribe measles bars when you have the measles, or mending bars for broken bones, for instance. The bars don't cure the disease or mend the broken bone, but they do provide extra nutrients your body needs when you're sick.

Food bars are quick, cheap, and nutritious, and people eat them when they just don't have time for a regular meal. As your daughter-in-law leaves for the hospital, she grabs a ham and eggs bar from the Food Bar Dispenser. "See you tonight," she says, as she leaves.

Regular meals — pretty much just like what you used to eat when you were a kid — are still the most popular kind of meals. Your son is planning a regular meal for tonight.

But there are some important differences in the regular meals people eat in 2029. For instance, there are almost no canned foods. That's because people found that canned foods left too much waste material after use. And canning took up too much energy. So now only a few special foods come in cans.

Jars and bottles have also disappeared. Food is now put in see-through packages. These packages "hug" the contents.

As you look around the Nutrition Module, you notice some other things that are different from when you were young. For one thing, there is no longer the big refrigerator like there used to be. Refrigerators are no longer needed.

That's because food is now treated in a special microwave process that seals in freshness. Meat can keep for over 2 years that way. So can all other food — even milk.

There is, however, a Quick Chilling Unit on the counter. That's for when you want something cold. You slip your glass of soda or milk, or juice into the Quick Chilling Unit, and seconds later you have a nice cold drink.

The screen of the computer now shows three different food menus that your son can pick from for tonight's dinner. But it also shows that the family is out of tomatoes.

"I'll stop at the Nutrition Supply Center this afternoon," you tell your son. "Is there anything else we need?"

The Nutrition Supply Center

Later that afternoon, you stop by the Early Learning Environment to pick up your granddaughter. Then, the two of you take the electric transporter to the Nutrition Supply Center.

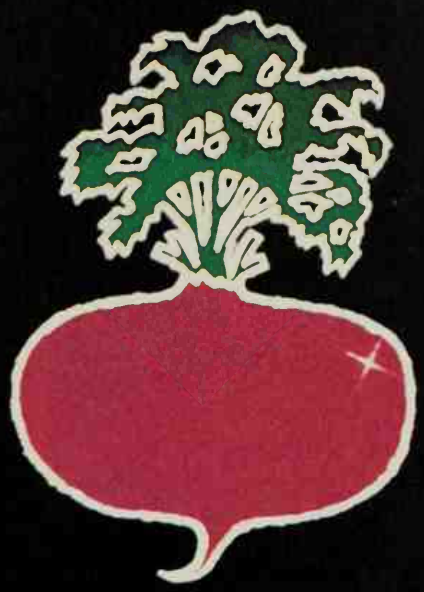
"Here they are, Granddad," Allison says, as she hands you a box of square tomatoes.

"You know, honey," you say to her. "Back when I was your age, tomatoes were round."

"Round!" she says, not quite believing you. "That's sure a funny shape for tomatoes."

You explain that indeed tomatoes used to be round. But round tomatoes couldn't be packed as well as square tomatoes. So farmers experimented until they came up with a kind of tomatoes that would taste good, and at the same time grow in a shape that would be easy to pack — square.

As you walk around the Nutrition Supply Center, you pass a section called "Food Analogues." An analogue is something that is like — but still different from — something else. Soybeans, peanuts, sunflowers, wheat corn, oats: All of these have been made into Food Analogues. And these foods don't look or taste at all like the seeds they came from.



Some look like carrots; some like pineapples; some like cheese; and some even have all the texture and flavor of meats. Food bars, like what your daughter-in-law had this morning, are also sold here.

"Can I have an orange to eat on the way home?" Allison asks.

"Sure," you answer. And off you head to the Fruits and Vegetables section.

There are a lot of differences in the foods in this section, too. You notice how huge the heads of lettuce are, for instance. And the beets are gigantic. In fact, most of the fruits and vegetables are much bigger than when you were young. ➠

Over the years, farmers had more and more people to feed. But they didn't have enough good land. So they had to make the most of each plant.

They developed plants that would focus all their growing energy on the part that we eat. So, with lettuce, the plant does most of its growing in the leaves; and the roots stay very small. With the beet, since we eat the root, that grows big, while the leaves stay small. And with orange trees, the fruit grows big, while the leaves and roots stay as small as possible.

There are some other differences in the fruits and vegetables as well. For one thing, the oranges no longer have any seeds. None of the citrus fruit has seeds. And the shells of nuts don't need a nutcracker to open. All you have to do is squeeze the shell gently, and PRESTO!

Farmers came up with these new kinds of plants — and animals, too — through what is called "genetic engineering." Put simply, that means that farmers changed the cells in the seeds of plants, for instance, so that the plants would grow the way farmers wanted them. One result of genetic engineering is that corn and rice now have as much protein as soybeans and peanuts.

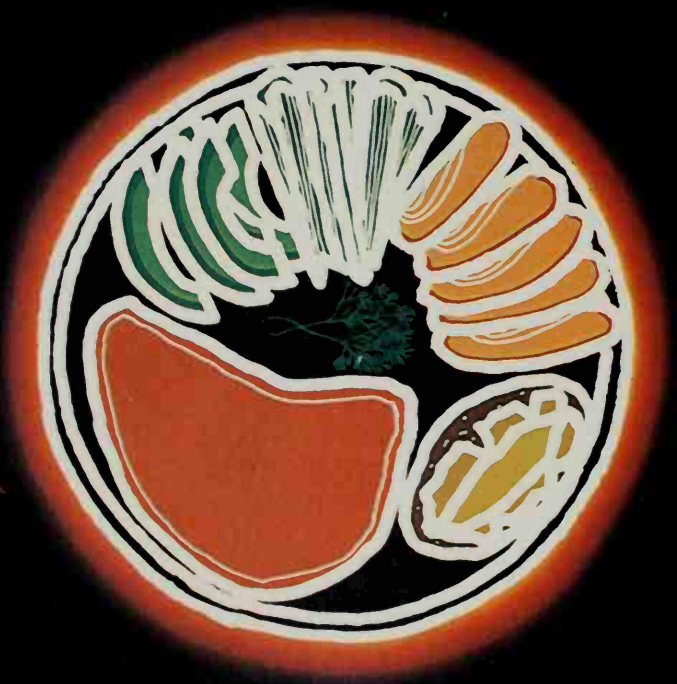
Another difference in the regular food that people eat in 2029 is that they're eating more fish and other seafood. That's because better methods have been developed to "harvest" seafood from the ocean, and to more properly manage fish in oceans and ponds.

When you get home from the Nutrition Supply Center, you find that dinner is almost ready. Your son has chosen a menu that includes all-lean boneless steaks. Lean meat is another improvement in the food today. Farmers are able to grow cattle, pigs, sheep, and chicken without letting them put on fat. The steaks are made tender throughout by treating them with volts of electricity.

The dinner menu also includes a fruit salad of apples, celery, and a bit of avocado; small baked potatoes; low-fat milk; and a delicious dessert of strawberries topped with a non-fat whip.

The steaks and potatoes were cooked in their own special compartments in the solar oven. The oven drew heat from power cells that stored energy on sunny days.

As you take your first bite of the evening meal, you think to yourself: "A lot of things about food sure have changed over the last 50 years. But when it comes to dinner, there is still nothing like a good, old-fashioned meal."



Future Farming in America

Food bars, square tomatoes, non-fat meat: Those are just some of the changes in the food you eat that you can expect in the years ahead.

But there are many other changes that you can expect as well. And all of those changes in our food and what we eat will begin with the farmer on the farm.

That shouldn't be surprising. From the time that farming was first started — some 12,000 years ago — the farm has been the center of life. And there is no reason to believe that that will change in the future.

There will be, for sure, many new methods and improvements in farming in the years ahead. One new aid in farming will be the computer. Computers will help farmers plan their crops. They will tell the farmers when to plant and harvest in order to get the largest and most nutritious crops.

Computers will also help farmers keep pests away without using as many pesticides as they use today. The computers will keep track of the insect population, including both the insects that are harmful to crops, and the ones that help some crops — like bees.

When the insect population has become a problem, the computer will give the farmer that information. That way, the farmers can spray pesticides only when they are really needed. And that will keep the use of chemicals in the environment to a minimum.

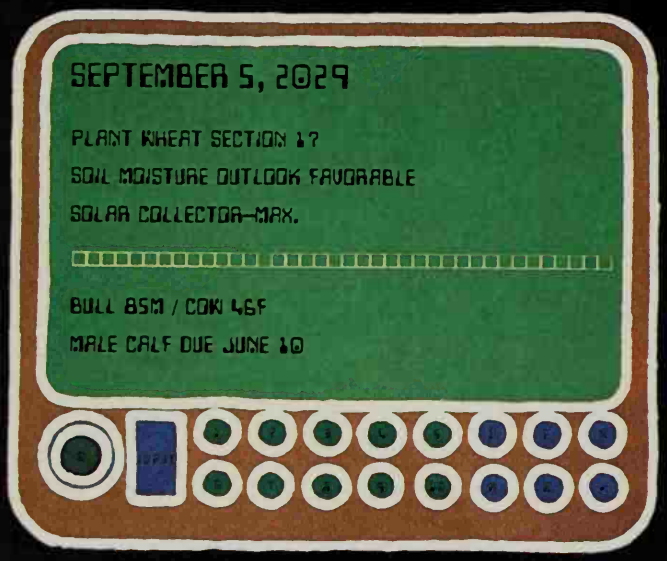
Energy will probably still be a problem 50 years from now, as it is today. But there will be

TRICKLE IRRIGATE 3,800 LITERS FIELD 15 A

many things that farmers will do to help the energy problem.

For instance, it's likely that farmers will use windmills and solar energy. Windmills will provide electricity for the home and the barn. And solar energy will heat these places. Fuel made from waste matter on the farm will probably be used as a source of energy to run tractors and other farm machines.

There will also be changes in farm animals. Cows, for instance, will be able to provide a lot more milk than they do today. And farmers will be able to control the sex of the newborn animals.



If the farmer needs more milking cows, he will be able to make sure a mother cow gives birth to a female calf. If he needs a bull to grow meat, he'll be able to make sure the calf is male.

In the future, you will also probably see many more fish farms than there are today. Fish farmers will breed and grow fish for market. Solar energy will help keep the fish ponds at just the right temperature to grow the best fish.

Fresh water, though, may become as scarce in the years ahead as gas is today. Yet, farmers will still need about 80 percent of the country's water supply as they do today.

So farmers will take more care in catching rainwater and storing it in huge underground storages. Then, as crops need water, solar energy will drive the irrigation pumps and spread water to the crops that need it most.

Most farmers will be using a special "trickle" system for irrigation. This system will let only a few drops of water out at a time right on the plants' roots. The system will help save a lot of water.

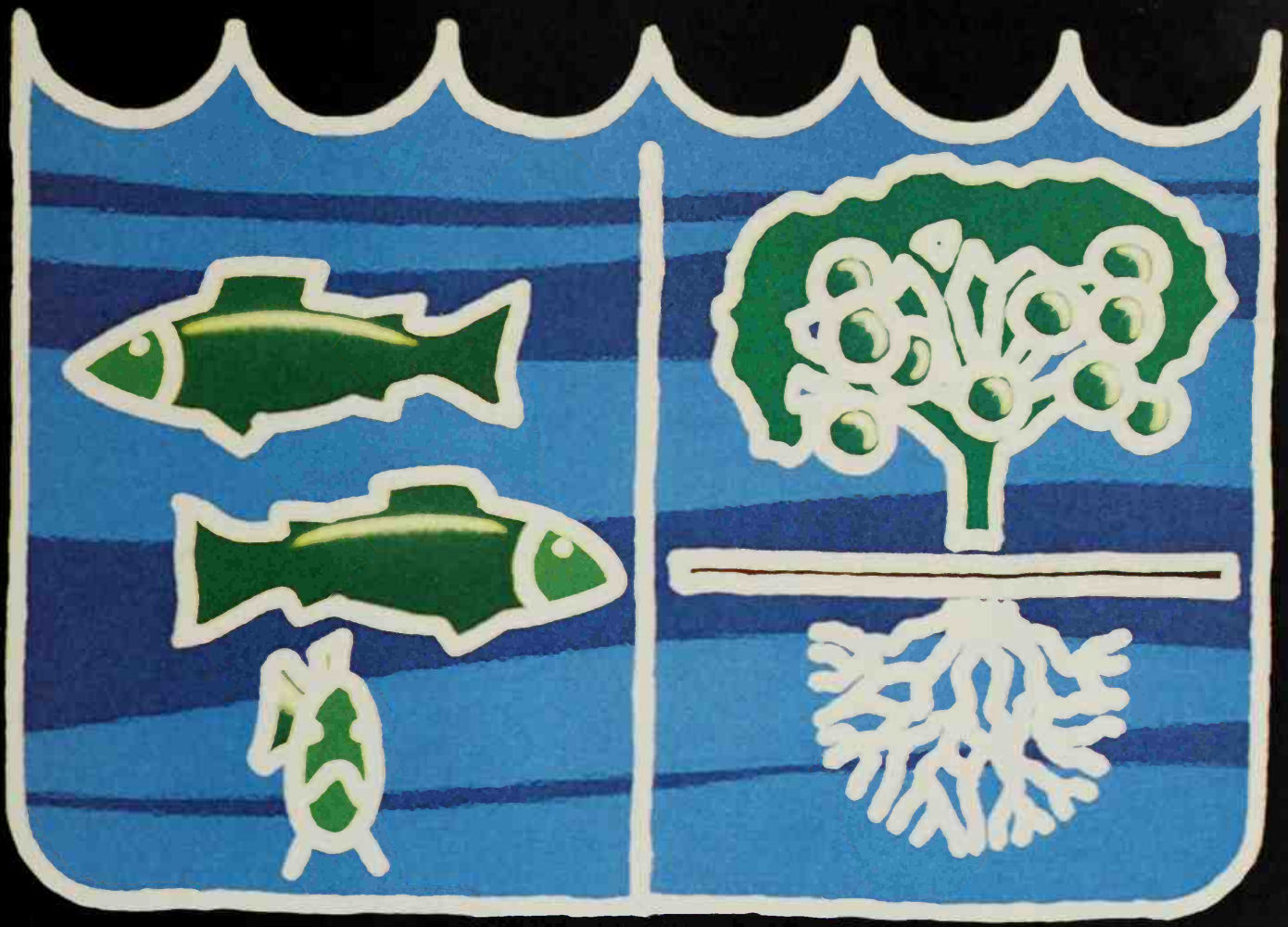
Seawater farming also looks very promising for the future. Today, many varieties of plants would not be able to survive in such salty water.

Fifty years from now, farms will also have probably cropped up in cities. These city farms, of course, will not use land for growing crops. They'll use water. This is called hydroponic farming. (Hydro means water.)

Hydroponic farming looks sort of like a huge greenhouse in a covered swimming pool. Farmers have found this method of farming useful for a couple of reasons. One is that they can plant more crops in less space. Another is that the farmer has more control over the nutrients the plants get to help them grow.

Although this method of farming may cost a little bit more in the beginning than planting crops in the soil, it often saves money later on. For instance, the cost of transporting crops after they have been harvested can be lowered because farmers can set up farms much closer to where the food will be sold — the cities. This is particularly useful in places like Alaska where food would normally have to be shipped in by airplane.

There will be many more people to feed 50 years from now, so quick-growing kinds of plants and animals will be developed. Crops will probably yield twice as much as they do



today. And chickens and other farm animals will probably take half as long to grow ready for market as they do today.

New kinds of hens will be bred that can lay low-cholesterol eggs for people who need them. And while it is not likely that we'll be able to get chocolate milk directly from cows, certain cows will provide certain kinds of milk — some with nearly all protein, for instance; others with special vitamins.

Farmers will also know how to take care of their land better. They will be able to keep it more fertile. They will know, for instance, how to keep the rain from washing away their good soil. Streams and rivers will be clearer and brighter, since farmers will have better methods of controlling pollution from their farms.

One of the greatest results of all these improvements in farming in the future will be that people around the world will be eating better!

There will, more than likely, still be many people that don't have enough to eat. So the countries of the world will have to continue their struggle to learn how to help each other with the enormously important task of feeding the world's population. □

WHAT ARE SOME GOOD FOODS I CAN GROW?

Easy Steps to Starting Your Own Garden

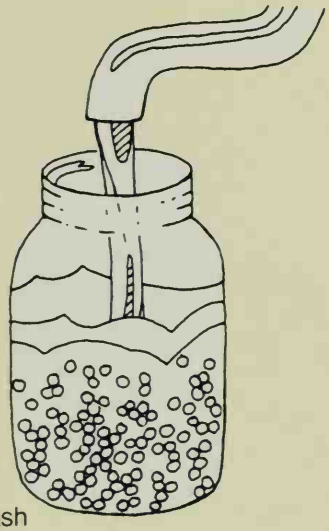
Have you ever picked a red, juicy tomato right off the vine and bitten into it? Or pulled a fresh, crisp carrot right out of the ground, wiped the dirt off, and munched down on it? Or have you ever picked a small zucchini squash, sliced it with a knife, and popped the tasty pieces into your mouth? Or broken off fresh lettuce leaves from the plant and chewed them down like a rabbit?

If you haven't, you've missed a lot of fun ... and some mighty good eating as well! If you have, then you already know how much fun gardening can be. And you know what it means to grow nutritious foods that are really great to eat. You also know that gardening is work — sometimes hard work — but the food you get from it makes it fun work.

One of the nice things about having your own garden is that it's something you can do outdoors or indoors, in the country or in the city.

To help you get started, here are some tips and ideas for growing juicy tomatoes, crisp carrots, tasty zucchini squash, and fresh lettuce. Just grab your shovel, spade, or hoe, and get ready to "dig-in" to gardening.

Growing Bean Sprouts



(1) Wash

(2) Drain

(3) Let stand

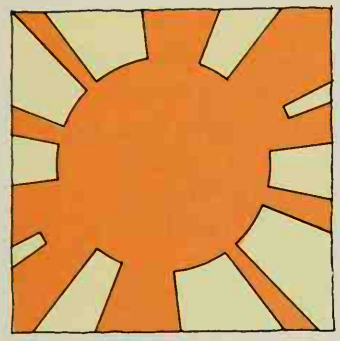
You might want to start with something easy — like bean sprouts, for instance. To grow bean sprouts, all you need are some beans, a screw-top jar, water, and a little time. Buy some Mung beans from a seed catalog or a "natural" food store. Then follow these three steps: (1) Wash a half cup of the beans and soak them overnight in cold water; (2) Drain off the water. Punch holes in the lid of your screw-top jar. Put the beans in and screw on the lid; and (3) Put the jar in a dark place.

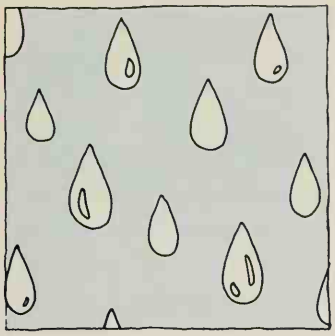
Rinse the beans with water and drain them two or three times each day. Each time put the jar back in a dark place. The sprouts grow very fast — in fact, they'll be ready to eat in 5 days. They're really good in salads, or cooked with other vegetables.

Bean sprouts, of course, are only the beginnings of plants. If they were to grow much bigger and develop green leaves and stems, they would need more than just the water you would give them to make sprouts. They would need soil, light, and air.

AN OUTDOOR GARDEN

If there's a yard around your house, see if you can talk your parents into giving you a little space to grow some tomatoes. A small piece of land that's about 3 feet by 5 feet will grow two tomato plants. But the land for your tomato plants should be sunny and close to where you can get water easily.



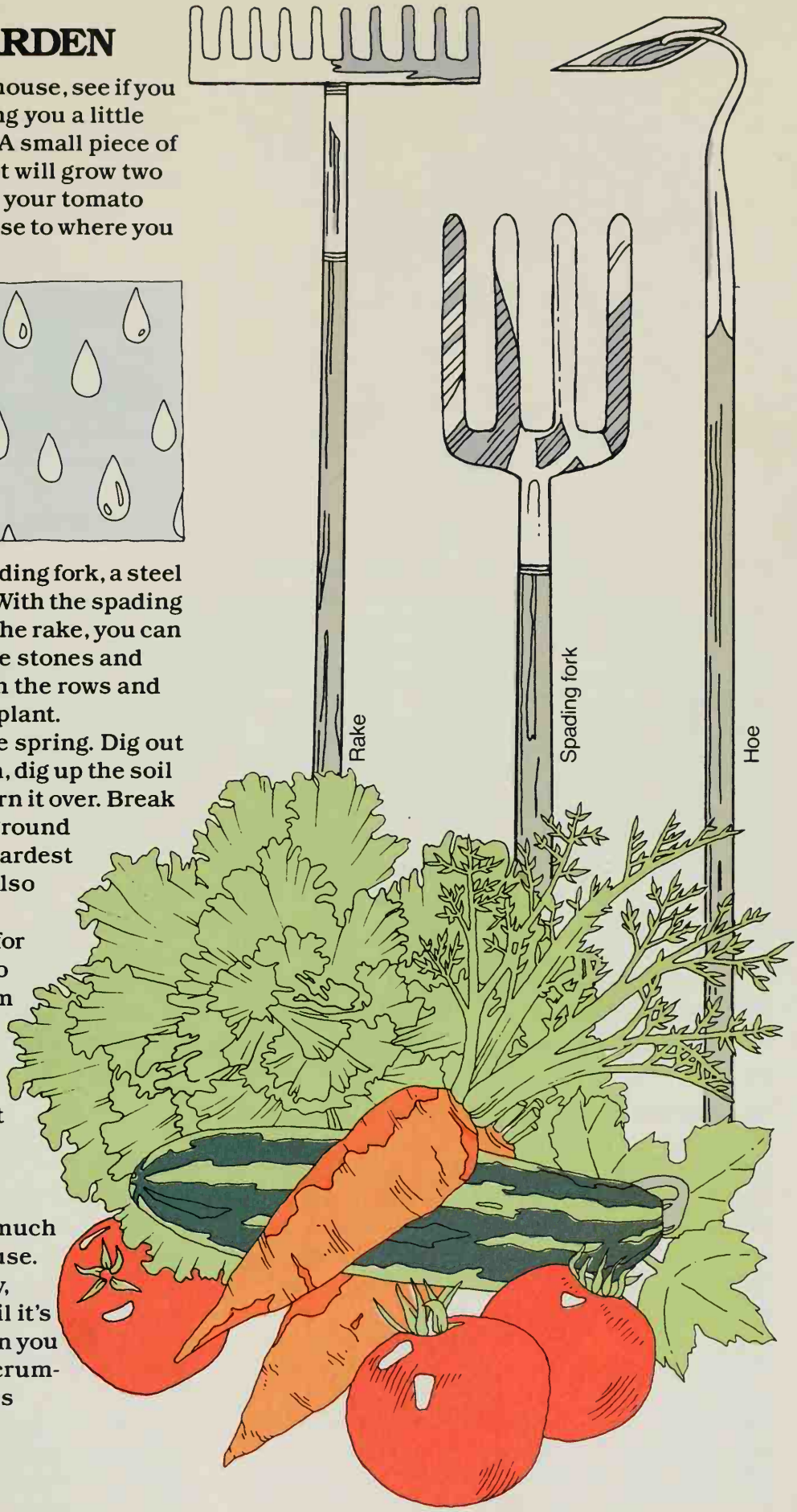


You'll need some tools. A spading fork, a steel rake, and a garden hoe will do. With the spading fork, you can dig the soil. With the rake, you can smooth the soil and remove the stones and sod. With the hoe, you can form the rows and keep the weeds away from the plant.

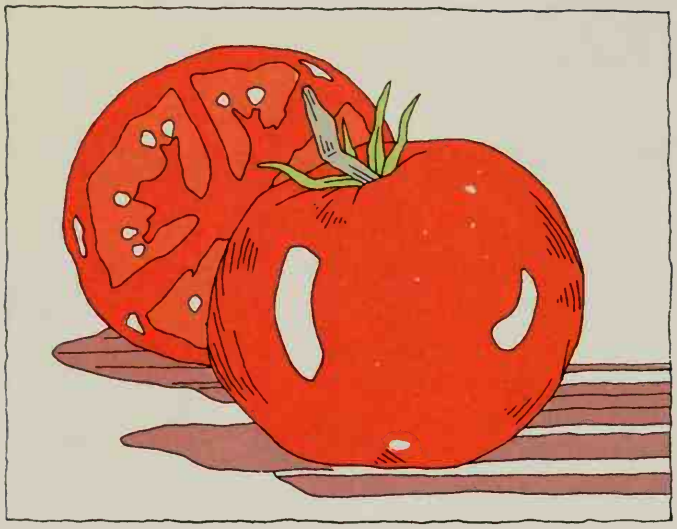
Start your garden early in the spring. Dig out all the weeds by the roots. Then, dig up the soil to a depth of about 1 foot and turn it over. Break up all the lumps and rake the ground until it's smooth. This is the hardest work of the whole garden; it's also the most important.

Just as you need nutrients for your body to grow, your tomato plants will need nutrients from the soil so that they can grow and produce fruit. Have your parents help you add *fertilizer* to your ground. They may want to call the local county agent or State university and have the soil tested for you. That way they'll know exactly how much and what kind of fertilizer to use.

If the ground is hard and dry, water it heavily. Then wait until it's dried just enough so that when you pick up a ball of it, it's soft and crumbly in your hand. Your garden is now ready to plant. ➤

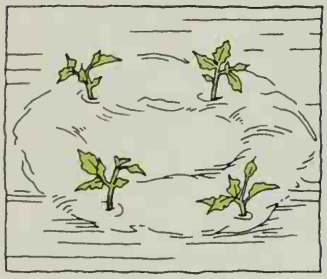


Your Own Tomatoes

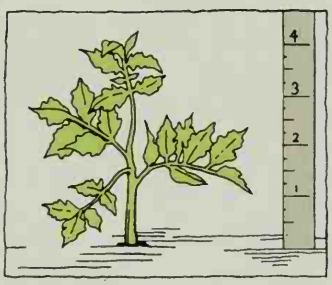


Make two little circles about 1 foot from each end of your piece of ground. In each circle put three or four seeds. If they all grow, you'll have more plants than you need. But plant that many just in case some seeds don't grow. Cover the seeds with about ¼ inch of soil and pat it gently with your hand.

In a week or 10 days, tiny tomato plants should appear. They'll have two leaves each. As they grow (picture A), they will put out more



(A)

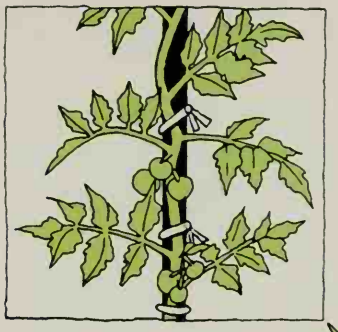


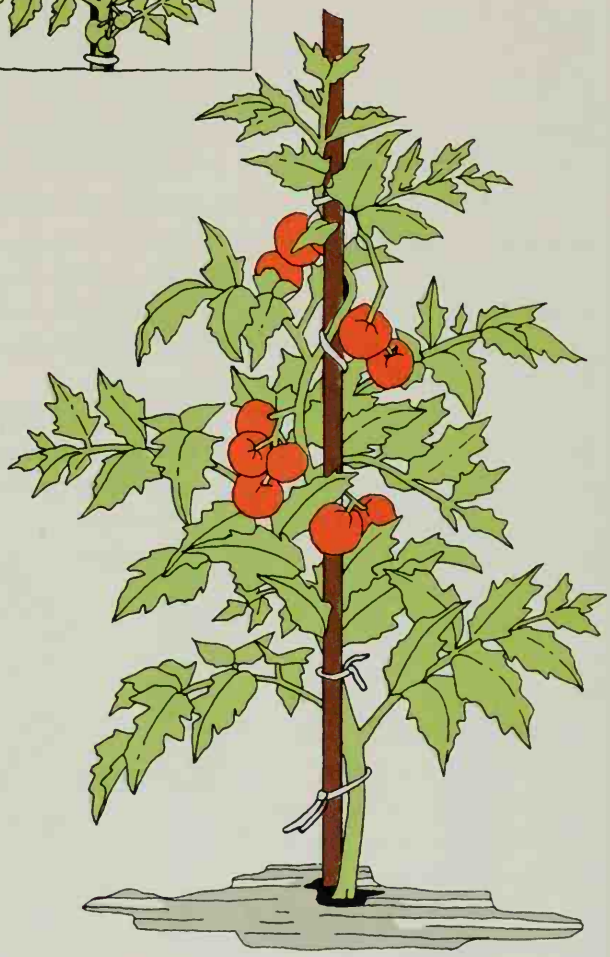
(B)

and different kinds of leaves. When they are 3 or 4 inches high (picture B), pick out the strongest and healthiest looking plant in each circle. Then, pull out the rest. If you don't do this, you will have too many plants for the amount of plant food in the soil. When you have done this, you will have two tomato plants, one on each end of your piece of ground.

Rain is the best way for water to come to your tomato plants. But if there's not enough rain, water the plants to keep the soil moist. You may want to put some leaves around the base to keep the moisture in and the weeds from growing. This is called *mulching*. Use your hoe and your hands whenever you have to keep weeds from your piece of ground.

As your tomatoes get taller (picture C), drive a 6-foot stake in the ground beside each plant. Tomatoes are vines. And you will need to tie these vines loosely to the stake as they grow. This will keep the plant and the tomatoes from drooping on the ground.





(C)

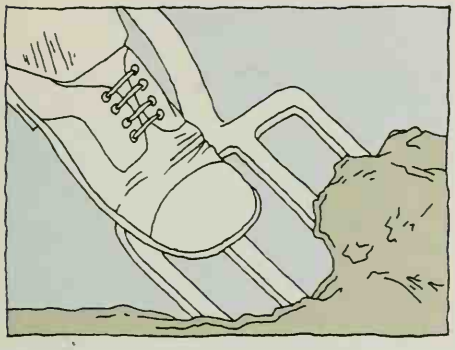
First, you'll see delicate, yellow blossoms come out. Then, tiny green tomatoes will form. Finally, in 2 to 3 months after you've planted them, you'll see the large green globes turning to a juicy red. Your tomatoes are ready to pick and eat!

In some of the colder climates, you may want to start your tomatoes indoors instead of planting the seeds out in your piece of ground. We'll talk about that a little later when we discuss indoor gardens. Sometimes you also may want to buy your tomato plants in pots instead of starting them from seeds.

2 Feet of Carrots

If you want to enlarge your garden a little bit, grow some carrots. They're among the easiest of the vegetables to grow. You could raise them in a single row about 3 feet from your tomato plants. But remember to keep all the weeds cleaned out between them.

Work up the ground the same as you did for the tomatoes (picture A). Then take your hoe handle and make a trench about ½ to ¾ inch deep and about 2 feet long (picture B). Plant the tiny seeds about ½ inch deep and 1 to 2 inches apart (picture C). These seeds won't grow so fast as the tomato seeds, so give them a little more time to come up through the ground. Don't give up. They'll be there.



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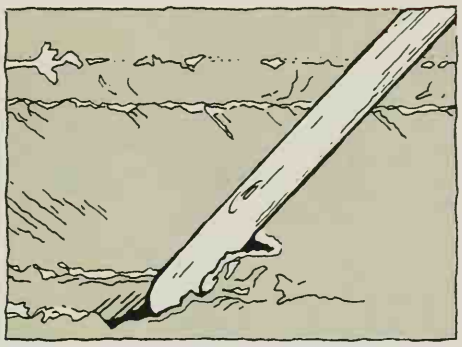

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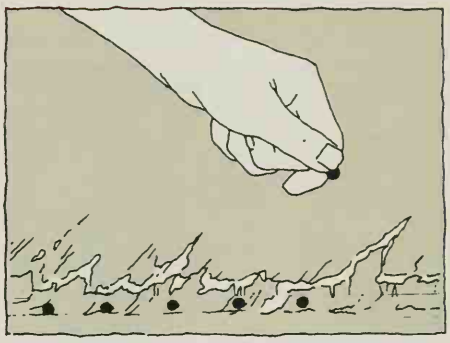
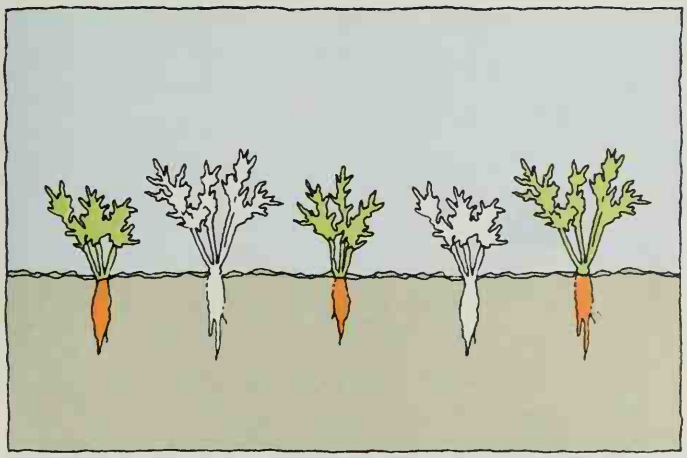


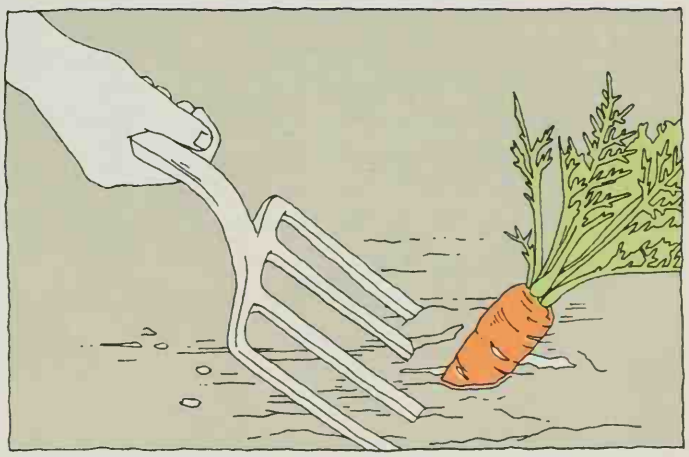
(C)

After the delicate, green tops are 2 to 3 inches tall, pull out every other one (picture D). This is called *thinning*. Thin them again about a month later so that the remaining plants are 3 inches apart. When you do that second thinning, you'll find tiny little carrots at the base of the stems. Wipe them off and eat them.
They're terrific!

The carrots will grow fast after the second thinning. In another month, you'll have full-grown roots. Sometimes the soil will be too hard to pull them up by hand. In that case, use your spading fork to loosen the ground around them (picture E), and they'll pop up for you.

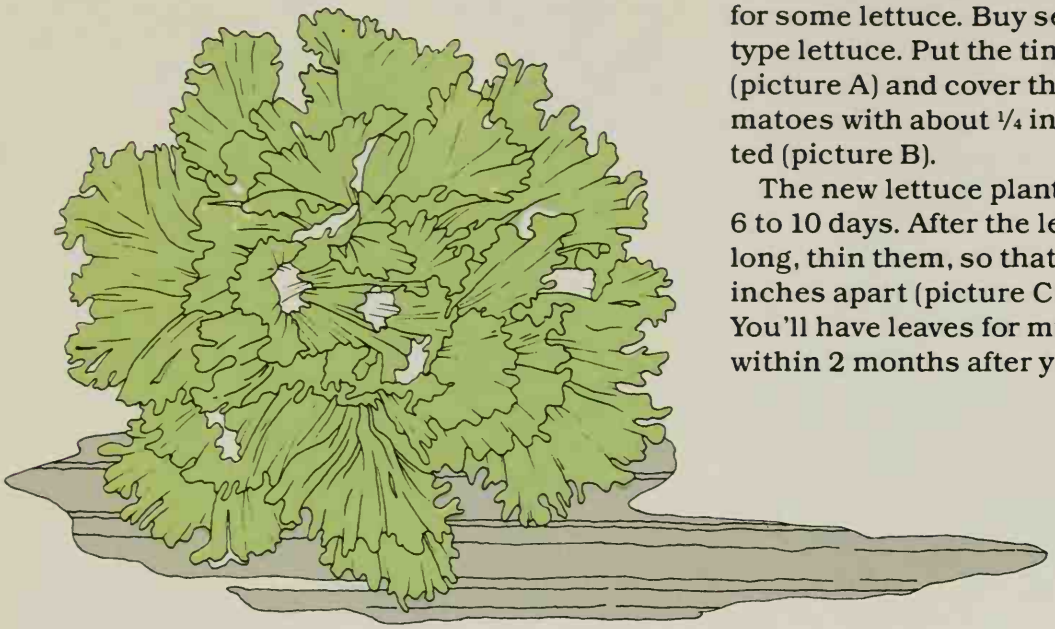


(D)



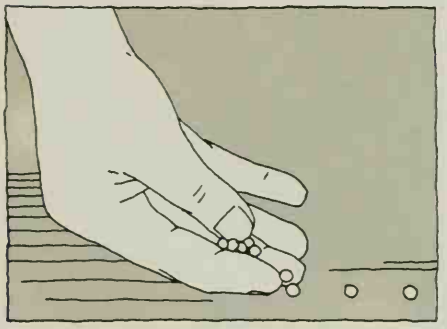
(E)

Lettuce for Munching



If you use only 2 feet of your garden length for carrots, you might want to use the other 2 feet for some lettuce. Buy seeds of the loose-leaf type lettuce. Put the tiny, black seeds in a row (picture A) and cover them as you did the tomatoes with about ¼ inch of soil — gently patted (picture B).

The new lettuce plants will come up in about 6 to 10 days. After the leaves are 1 to 2 inches long, thin them, so that each plant is 8 to 10 inches apart (picture C). Lettuce grows fast. You'll have leaves for munching and for salads within 2 months after you plant the seeds.



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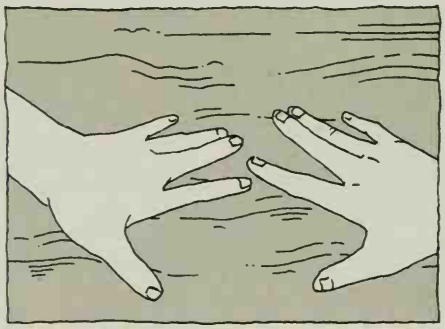

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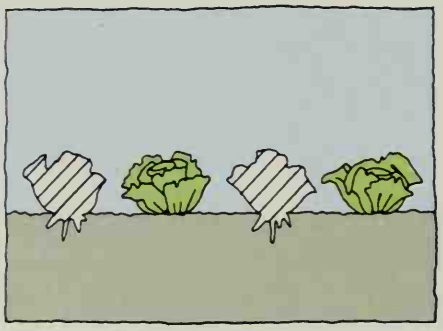
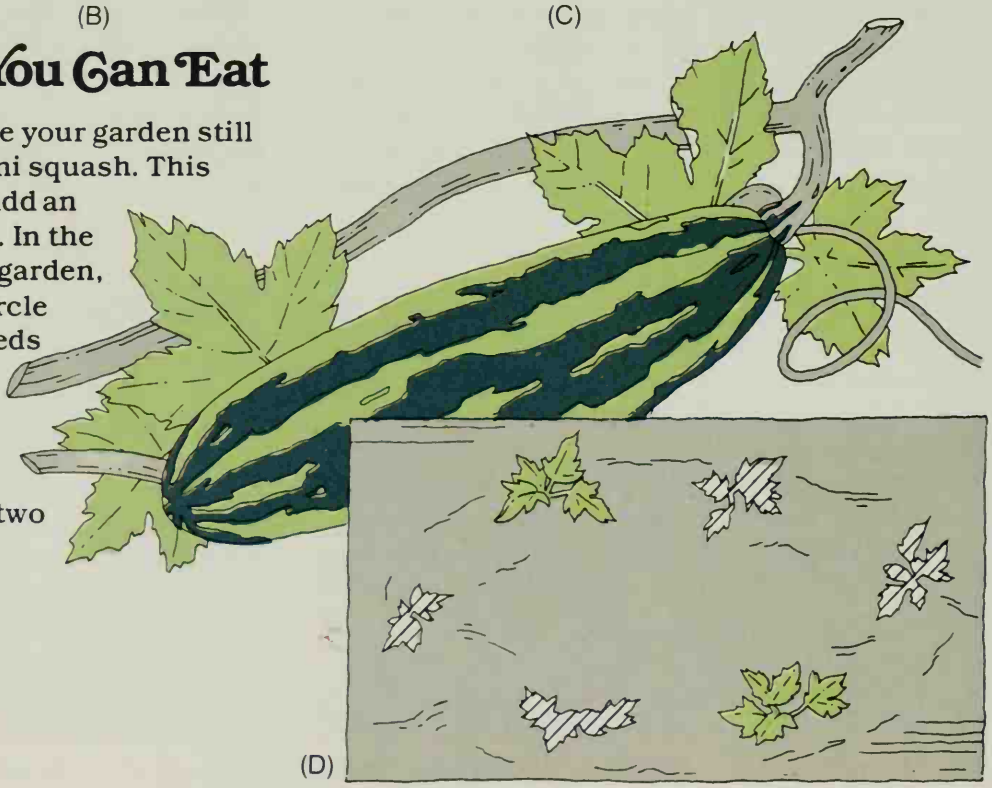


(C)

All the Squash You Can Eat

Finally, if you want to make your garden still larger, try planting a zucchini squash. This means that you will have to add an area of about 4 feet by 4 feet. In the middle of the 4-foot-square garden, make a little circle. In the circle plant six to eight squash seeds 2 to 3 inches deep. The new plants should come up in a week or 10 days. After another week, thin them so that you leave only the best two (picture D). ➤



(D)

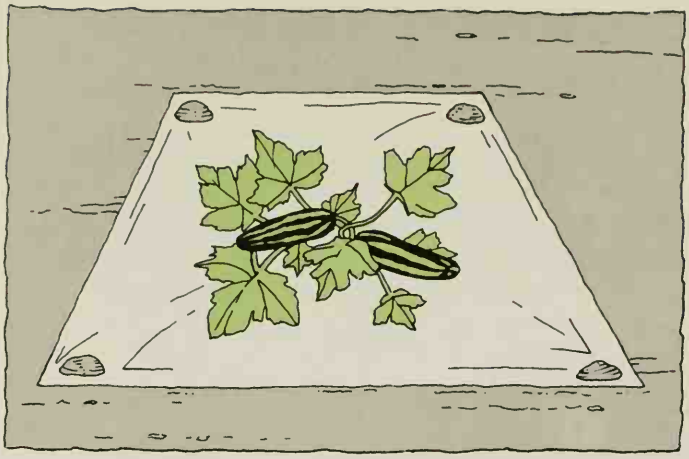
When Should You Plant the Seeds?

Your garden has two kinds of vegetables in it. The lettuce and carrots are tough and can stand cool weather. Put those seeds in the ground as soon as the soil can be prepared in the spring. The tomatoes and the squash are tender vegetables. Wait until the soil is warm — until there will be no more frost in your area — before you plant tomatoes or squash.

What Do You Do About Pests?

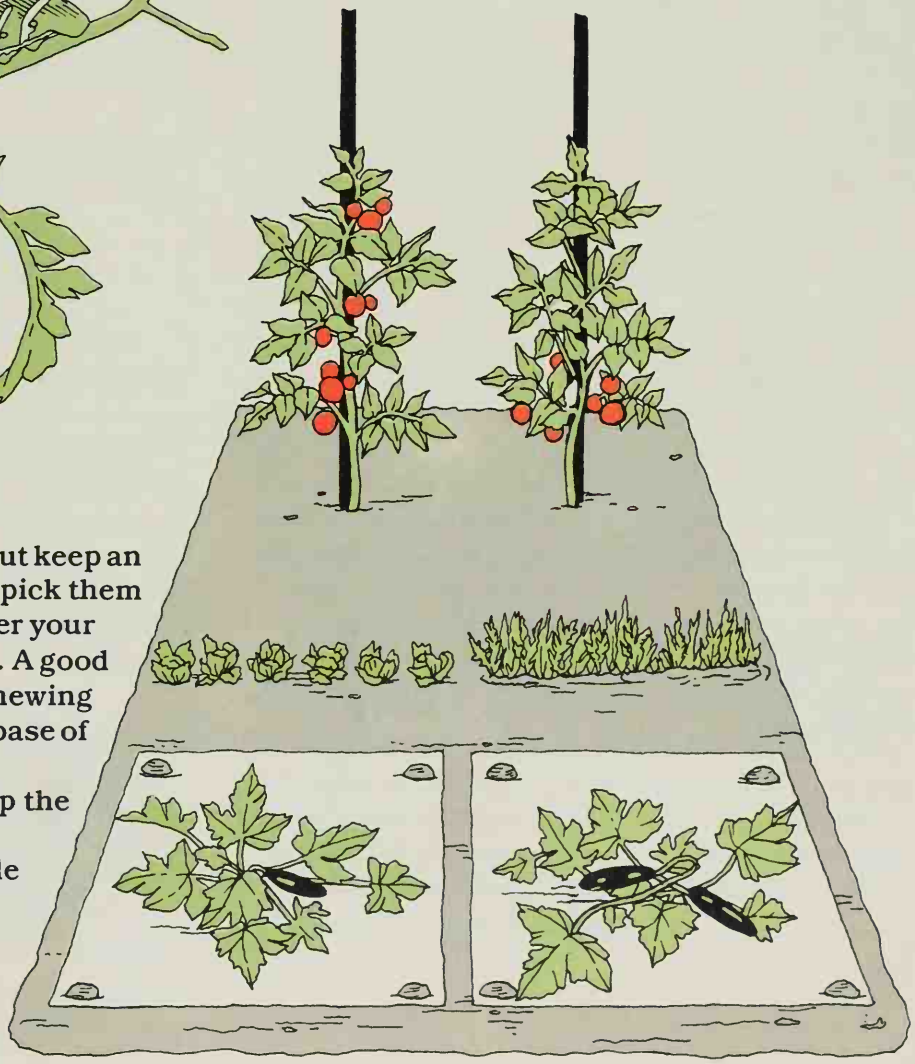
Anything that grows has something else that wants to grow on it. The plants in your garden will be no exception. Look on your tomatoes for wriggly, green tomato worms and for other insects (picture A). Pick them off. Drop them in a can so that you can carry them away and destroy them. Carrots and lettuce don't have many insects that bother them, but keep an eye out for them. If you see some, pick them off, too. The insect that will bother your squash the most is called a borer. A good way of keeping this fellow from chewing up your plant is to surround the base of the squash stem with a sheet of aluminum foil. This will help keep the borers away (picture B).

(A)



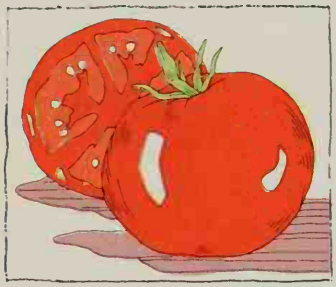
(B)

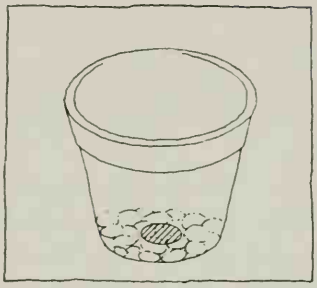
Sometimes none of these simple methods will work, and you will find insects on your plants that can keep them from producing the roots, leaves, and fruit that you want to eat. Sometimes your plants will get sick with a disease. You'll need help. You may need *pesticides*. These are chemicals that will kill the insects or control the disease. If you need pesticides, have your parents call your local county agricultural agent or your State university to find out how to treat your plants.



GROWING YOUR GARDEN INDOORS

If you don't have a yard around your house and there's no other small piece of ground you can use to raise your garden, don't be discouraged. You can raise plants indoors or on your porch or on the balcony of your apartment.

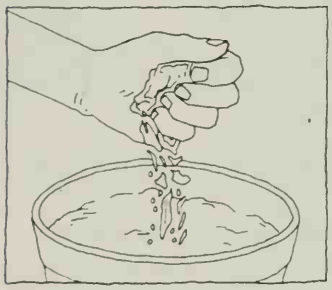




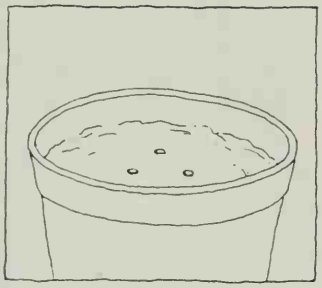
(A)

For your tomatoes, get some pots that will hold about a gallon of soil. Before you put the soil in each pot, make sure that there's a hole in the bottom and that there's a layer of about an inch of stones so that the water will drain through (picture A).

Mix the soil so that it's fine and crumbly — just like you would want it outside in the garden (picture B). Then put it all on top of the stones in the pot.



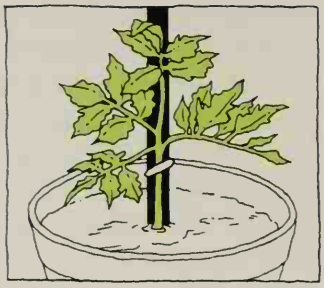
(B)



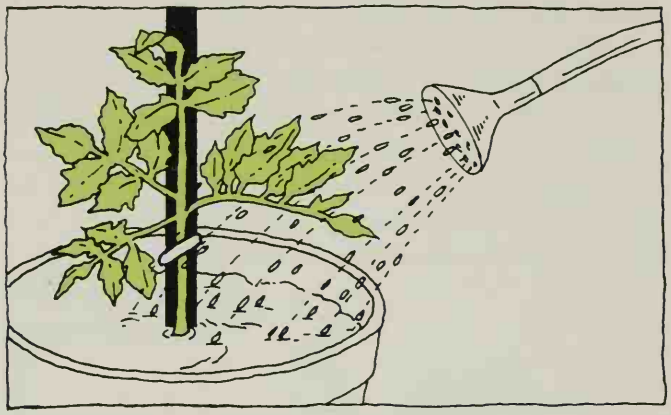
(C)

Plant your seeds like you would in the garden. Put three in a little circle in the middle of the pot (picture C). Wait for the plants to come up. After they are 2 to 3 inches tall (picture D), thin them down to one plant. Put a tall stake in the pot, so that the plant can climb up as you tie it (picture E).

(D)

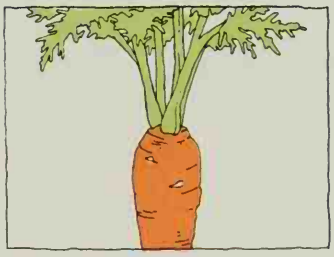


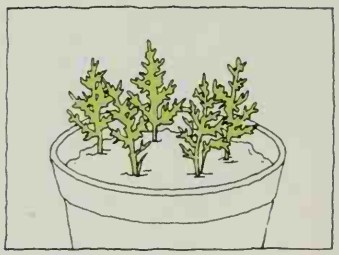
(E)



(F)

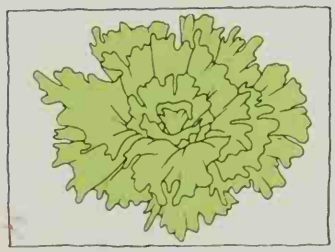
Water your tomato plants to keep them moist (picture F). Test the moisture with your finger. If the soil is dry, they need water. If it's moist, wait another day or so and test again.

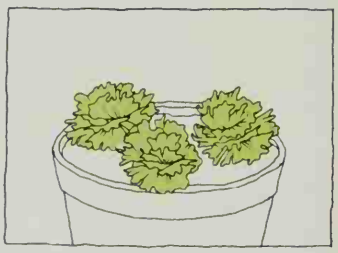




(G)

Carrots or lettuce can also be grown in gallon-sized pots. You can get four to five carrots in each one (picture G). You probably could get two to three lettuce plants in one pot (picture H). Prepare the stone drainage and the soil the same as you did for the tomato plant (picture A).





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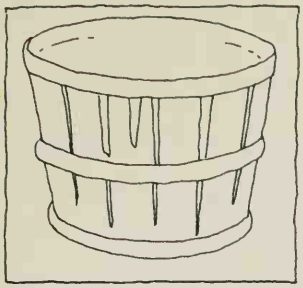
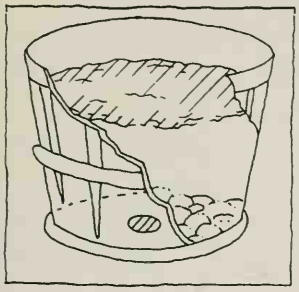
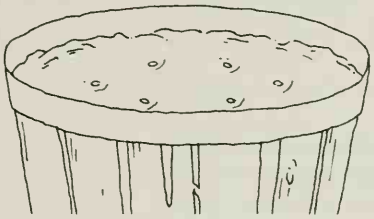


(A)

The zucchini squash, however, will probably require a tub. Its bushy plant gets so big that it will need more support than it could get from a small pot. So, use a half-bushel basket or a tub of similar size (picture A). Make sure there are

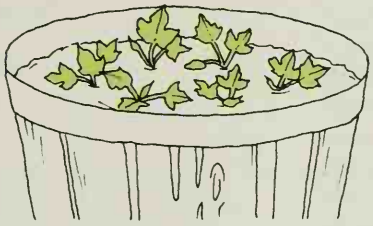


(B)



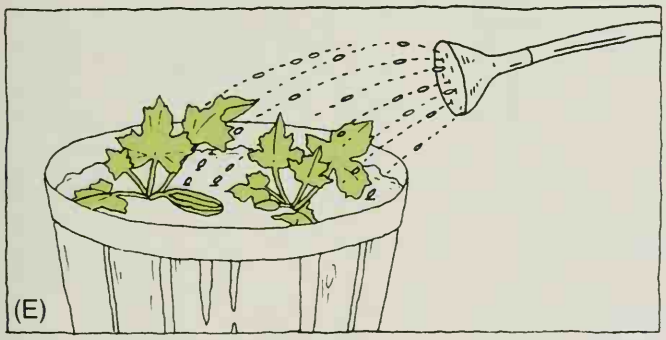
(C)

drainage holes in the bottom and add a layer of stone, then your soil (picture B). Plant six to



(D)

eight seeds, 2 to 3 inches deep, right in the center (picture C). Later, thin them down to two



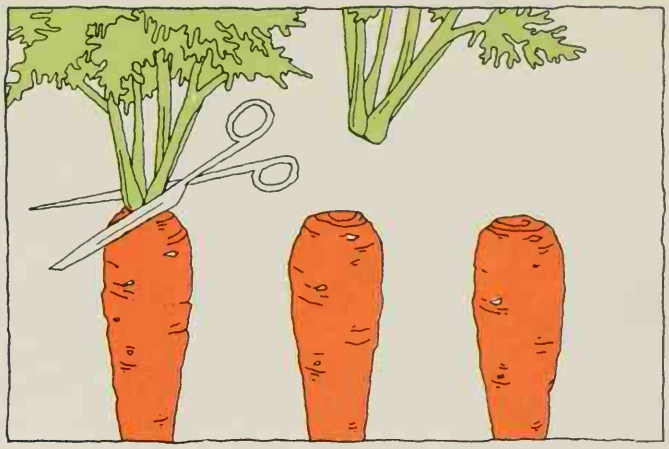
(E)

(pictures D & E). And be sure to water your plant to keep the soil moist.

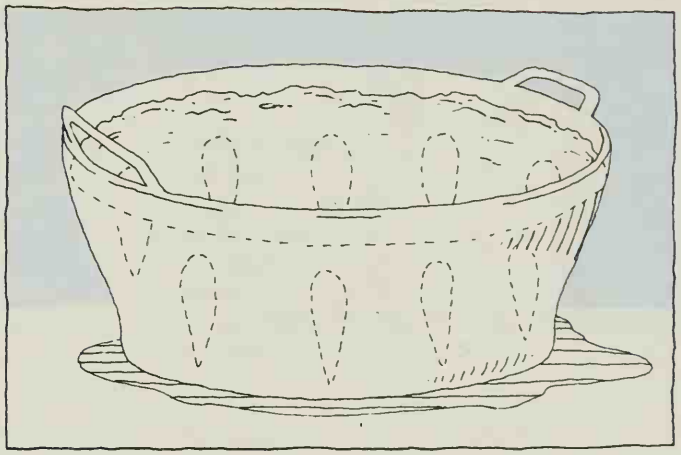
Again, it's important that you have your plants in a sunny location.

Whether indoors or outdoors, whether you grow bean sprouts, tomatoes, carrots, lettuce, or zucchini squash, you'll not only have a lot of fun — but you'll have some really good things to eat.

And you know something else? Those carrots can surprise you. You may still have some left in the garden after cold weather comes and the ground is about to freeze. Dig them up. Get yourself a tub of wet sand. Cut off the green



(F)



(G)

tops (picture F). Plant the roots with their tips down; cover them with sand (picture G). Have each carrot at least an inch away from the other. Keep the tub in the basement or some place where it won't freeze, and you can have carrots 'way into the wintertime!

Will your plants always grow? Will your tomatoes always have big, juicy fruit? Will the carrots always be long and tender? No. Everything that grows has problems at times. Also, you will have to learn how to garden, just as you have to learn how to read and write and play ball. But if you stay with it, you can have fresh, delicious food that you have raised yourself. Have fun with your garden! □

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A	·–		
B	–···		
C	–·–·		
D	–··		
E	·		
F	··–·		
G	––·		
H	····		
I	··		
J	·–––		
K	–·–		
L	·–··		
M	––		

	International Morse Code	Semaphore	Manual Alphabet
N	–·		
O	–––		
P	·––·		
Q	––·–		
R	·–·		
S	···		
T	–		
U	··–		
V	···–		
W	·––		
X	–··–		
Y	–·––		
Z	––··		

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